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KAT
Smith

THE

# WONDERS

OF

# NATURE AND ART;

OR,

## A CONCISE ACCOUNT

OF

## WHATEVER IS MOST CURIOUS AND REMARKABLE

IN

## *THE WORLD;*

Whether relating to its Animal, Vegetable, and Mineral Productions, or to the Manufactures, Buildings, and Inventions of its Inhabitants,

*Compiled from Historical and Geographical Works of established Authority, and illustrated with the Discoveries of modern Travellers.*

*By the Rev. THOMAS SMITH,*

Author of the UNIVERSAL ATLAS, SACRED MIRROR, &c. &c.

"Review these numerous scenes, at once survey
Nature's extended face, then Sceptics say,
In this wide field of wonders, can you find
No art discover'd, and no end design'd?"

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# CONTENTS.

## PART I.

## *OF EUROPE.*

### CHAP IV.


TALY, . . . . . 1
*ins, Caves, Springs, &c.* . . . . ib.
. . . . . 37
*les,* . . . . . 40
*s,* . . . . . 44
*ties,* . . . . . 51
*gs,* . . . . . 70
*Manufactures, Discoveries, and Fisheries,* 94


### CHAP. V.


ERMANY, INCLUDING HUNGARY AND
OHEMIA, . . . . . 105
*, Cataracts, Lakes, and Caverns,* . ib.
*ls, Fossils, &c.* . . . . . 113
*s,* . . . . . 127
*laneous Curiosities,* . . . . . 130
*ities,* . . . . . 133
*gs,* . . . . . 136
*nvocations, &c.* . . . . . 151

# WONDERS

OF

# ATURE AND ART.

## CHAP. IV.

### OF ITALY.

*Mountains, Caves, Springs, &c.*

HE Alps, which divide Italy from France
d Germany, are the highest mountains in
urope, being, according to some geometricians,
bout two miles in perpendicular height. They
egin at the Mediterranean; and extending
orthward, separate Piedmont and Savoy from the
djacent countries, whence directing their course
ward the east, they form a boundary between
witzerland and Italy, and terminate near the
driatic, north-east of Venice.

The prospect from many parts of this range of
ountains is peculiarly romantic, especially from
e Grand Chartreuse, where is a monastery, said
have been founded about the year 1084.
om the village of Echelles to the top of the
artreuse is a narrow winding road, skirted on
side with umbrageous woods of pine, and on
other by a terrific precipice, at the bottom of
h a torrent of water rolls over huge masses

stone, and occasionally
abrupt descents, with a
rendered still more treme
neighbouring mountains.
gether with the singular
and cliffs, and the numer
ble from the very summ
vale, concur to form one
interesting scenes in natu
templative spectator with
reverence for the power,
the Adorable Creator.

Amongst the natural v
Glaciers, or valleys of i
deserving of attention; an
divided into the Upper a
first covering the decliv
and the other occupying
The Upper Glaciers
those which cover the su
extend along the sides of t
very summit consist chiefl
the extreme cold; but
with a mixture of ice an
superior power of the sun
snow, which afterwards co
The Lower Glaciers, w
considerable, extend in so
several leagues. They do
cate with each other; few
to the central chain, but
transverse direction
bordered

ıe Glacier de Bois, he did not find it exceed a
dred feet, though he was credibly informed
in other places it was upwards of six hundred

hese prodigious masses of ice generally rest on
nclined plane; where, being pushed forward
ıeir own enormous weight, and but weakly
orted by the rocks beneath, they are inter-
d by many large chasms, and exhibit a fan-
appearance of walls, pyramids, &c. The
ce of the ice is rough and granulated, so that
ns may walk upon it in perfect safety, except
h parts as have a steep descent, or are covered
ı collection of earth and stones, which have
from the mountains, and is generally known
: appellation of the *Moraine*. A celebra
er * who visited the Glacier des Bois infe ame
t its appearance, at a distance, was re icy
ıdous, and that the design of crossing ce,
l utterly impracticable. Numerous broad
intersected it in every direction; but when
ıpany entered upon it, they found that cou-
ıd activity were only required to accom-
eir task. Having passed the Moraine, and
upon the great body of the glacier, they
l an abundance of little rills, which, being
d by the thawing of the ice on the upper
the glacier, precipitated themselves into the
with a violent noise, increasing the body
formed by the melting of the interior sur-
l finding an outlet under the immense
e in the valley of Chamouny. "Having
d about an hour," says Mr. Coxe, "we
ıished with a view more magnificent

* Mr. Coxe.

asses of rock, terminating in spires, which are
lled the needles, and are ranged like tents in a
mp. Their sides appear remarkably light and
ry, from the ornaments of several breaks and fur-
ws in the rock itself, as well as from the dif-
rent streaks of ice and snow, which, without
anging the general character of their form, or
e majesty of their appearance, give them a pic-
resque variety. Lower down, the eye surveys,
ith astonishment, the gills of ice and the several
aciers extending almost into the richly-cultivated
ain; and a picturesque opposition to this chain
formed by innumerable mountains, at the dis-
nce of nearly fifty leagues, between whose tops
a partial glimpse of the plains which they en-
iron.

" In the valley of Montanvert," says the same
spectable writer, " we beheld a spacious icy
ain, upon which there rose a mountain of ice,
ith steps ascending to the top, and resembling
e throne of some divinity. It likewise assumed
e form of a grand cascade, whose figure was be-
nd conception beautiful, and the sun, shining
on it, gave a sparkling brilliance to the whole;
hile the valley on our right hand was ornamented
ith prodigious glaciers, that shot up to an in-
easurable height between the mountains, and
emed to blend their colours with the skies."

From one of the openings in the valley of Cha-
ouny, the river Arbairon rushes under two arches
ice, composed of many vertical shoots, which
emble the finest crystal, and reflect an infinity
the brightest colours. The Arbairon is a large
eam that falls into the Arva, carrying along with
many particles of gold; and the rivulet of Ar-

gentiere flowing from a glacier of the same is also enriched with particles of gold and sil

The Avalanches, or snow-balls, which times gather and roll down the sides of mountains, are equally surprising and dan to travellers. They are occasioned by the ping of a quantity of snow from some prot rock, which increases as it falls down the declivities, till it becomes of a prodigious siz sweeps away houses, trees, men, horses, or ever it meets with in its passage. As th suddenly, and with great rapidity, it is ver cult for passengers to avoid them; and noth able to resist their force till they get to the b where they are generally broken in pieces i violence of the shock. Some of these mo snow-balls have been found, by measuring track, to be above a hundred yards in dian and one of them, in the year 1695, fell u village in the night-time, and destroyed e houses, besides barns and stables, burying women, and cattle in the ruins. These te accidents are sometimes produced even b leaping of a chamois, the firing of a pistol, o noise that shakes the air, and loosens the from the rocks above: for which reason, in j of the greatest danger, people are careful to t early, and with all possible silence. Son these avalanches indeed are not so destruc for consisting of new-fallen snow, driven b wind, they are lighter, and persons buried i them may live a long time without being suffoc and are often relieved by men kept in pay to the roads, and give assistance on such occasio

The manner of crossing the Alps in some p is extremely curious: the inhabitants of n

s, who run up steep acclivities, loaded with
ost heavy burdens, without suffering tho
nconvenience, carry a person directly up a
ain, whose height is a good hour's journey,
ut panting or resting; and, on the plain
, proceed with amazing dispatch. Then,
g refitted the chairs, which is done in a few
es, they carry the company over the worst
f the way, for two hour's together, making
our pauses, and those very short ones:—such
effect of custom, and of the simple diet, to
they owe their uncommon longevity, many
m attaining to above an hundred years of
Milk is their usual food, and they seldom
any wine. To secure their footing, their
are without heels, and the soles rubbed
wax and rosin. The machines in which
re carried, are a kind of straw chairs, with
acks, two arms, and, instead of feet, a
oard hanging down by cords, for resting the
ler's legs. The seat, which is made of bark
opes twisted together, is fastened to two
and carried like a sedan, with broad leathern

ing winter, the plain on the top of mount
s, being always covered with snow, is cross-
sledges, drawn by a horse or mule. In some
, the descent is performed in chairs, but
nount Cennis to Laneburg, it is conducted
ost surprising manner. On the edge of the
ity is a house, where the traveller, getting
sledge with his guide, slides down with
apidity, that he is carried about three miles
en or eight minutes, the swiftness of the mo-
most taking away his breath. The guide
ward, steering with a stick, and has on each

side an iron chain, which he drops like an
either to slacken or stop the course of the
In some of these mountains the river A
for many miles between high, craggy, a
cessible rocks, which seem as if split on
to give its rapid waters a free passage. T
nishing echos and continual sounds occas
its streams, the trampling of the horses an
and the hallooing of passengers, in these
are reverberated several times, with such
loudness, as fills a stranger with emotions
scribable terror; and the firing of a gun
is here more dreadful than the loudest
thunder. The great cataracts of the river
several places, more or less loud and
according as the waters are swelled by the
snows, with which the tops of the moun
covered. One in particular falls with gr
and violence from a prodigious high rock
eleven hundred feet.

It has been already observed, that the
the highest mountains in Europe, not o
barometrical observations, but because t
rise to those rivers which water all the
around them; and they may probably
height with most of the considerable mou
other parts of the globe. The Joch, a hig
tain in the territory of Engelberg, borderi
the canton of Bern, has been found by th
of the mercury in the barometer, accordi
Scheuchzer's calculation, to be five
nine hundred and twenty-six feet ab
level of the sea: and yet this is far fro
the highest mountain in that neighbourh

feet higher. The Gemmi is a very lofty mountain, over which there is a passage, but only in the summer, from the canton of Bern to Leuck in Valesia. The descent on the south side of this mountain is steep and frightful beyond description, being a narrow path cut on the side of almost perpendicular precipices, and sometimes the passenger is compelled to cross over the clefts on planks or quivering wooden bridges. The height of this mountain, at a cottage called Zur Dauben, appears by the barometer to be six thousand and twelve feet, being the highest part of it that is passable. As to the Avicula, the St. Gothard, the Furea, the Grimsula, the Crispalt, and a long chain of other mountains, which begin in the Upper Valais, traverse the canton of Uri, and run across the country of the Grisons towards Tyrol, their greatest height above the level of the sea may be fixed in round numbers at seven thousand five hundred, or eight thousand feet. But the highest of all the mountains of Switzerland is the Stella, or Piz Stail, in the country of the Grisons, the perpendicular height of which is nine thousand five hundred and eighty-five feet, according to the computation of Dr. Scheuchzer, or twelve thousand one hundred and ninety-six, according to that of Cassini. Mr. Martel, when he visited the glaciers of Savoy, calculated the height of Mount Blanc to be twelve thousand four hundred and forty-nine feet above the level of the Rhone at Geneva. These stupendous mountains, however, are far inferior to the Andes, as will appear in our account of the natural wonders of America.

The Appenines are another chain of lofty mountains, which extend entirely through Italy, from north west to the south east, and which gives

rise to several rivers and brooks, that fertili
circumjacent country.

Besides the Alps and Appenines, Italy
versally celebrated on account of its two v
mountains, Vesuvius near Naples, and Etn
Catania, in Sicily.

Mount Vesuvius is situated at the dista
five Italian miles from the city of Naples,
justly accounted one of the most dreadful v
in the world. Its declivity toward the sea is
clothed with vines and fruit-trees, the c
ambient air is clear and salubrious, and the
bouring plain affords a most delightful pro
but the ascent to the summit is painfully te
and, after walking two miles over a kind o
earth mixed with calcined stones and cinde
traveller arrives at a naked plain, from
parts of which issues a sulphureous smoke,
the centre of it rises another hill, shaped
sugar-loaf, and of more difficult access th
former.

At the summit of this hill is a vast m
cavity, about four hundred yards in diam
the top, but shelving down on all sides like
nel, whence proceeds a continual smok
sometimes those astonishing eruptions of
ashes, and burning matter, which fill the
bouring villages with consternation. Ever
it darts forth its flames, and pours forth its
matter the exterior form of the mountain,
as its height, receive considerable alteratio
a small plain, resembling a half moon, s
between the mountain of cinders, and a
circular theatre of steep rocks, two hundr
*high*, *M.* de la Condamine viewed clos
*breathing holes*, opened in the sides of th

*Mount Etna.*

Vol. II. p. 61.

*Mount Vesuvius.*

through which, at the time of a late eruption, torrents of enflamed matter had escaped, to ı they give the name of lava, and with ı all this valley is filled. "This singular spec- presents us," says he, "with the appearance :tallic waves grown cold, and in a state of :lation. One may form a slight idea of it, pposing to ourselves a sea of thick and tena- matter, the waves of which were beginning ›side. This sea had its isles, which are so- masses, resembling hollow spungy rocks, ng into ascades and grottos, fantastically :d, beneath which the burning liquid matter ›pened itself magazines or reservoirs similar ıaces. These grottos, with their vaults, and ;, all the pure work of nature, were loaded scoriæ, suspended around them, in the form ılactites, or irregular clusters of grapes of ıs colours.

ancient history, we find dismal accounts of evastations occasioned by this volcano; and er ages, we meet with instances of its raging extraordinary fury. In the year 1694 there : violent eruption, which continued great part : month of April, and threw up ashes, stones, with such force, that some of them reached vento, nearly thirty miles distant. A prodi- quantity of melted minerals was likewise rn out of the mouth, and ran slowly down ides of the mountain, insomuch that great ers of men were employed to cut trenches channels to receive it, and prevent its spread ver the plains below. At this time, when vind was in the east, the houses and streets ıples were literally covered with ashes.

In the summer of [illegible], there happened a terrible eruption, attended with such a burning and bellowing of the mountain, as if it had been the report of the largest artillery. He threw up clouds of ashes into the air for se[illegible] days and nights, and a shower of stones that for [illegible] and more, it began to throw out a [illegible] stream of brimstone, which resembled a [illegible] stream of fire, and cooling in its progress, be[illegible] as hard as flint at the bottom, but more [illegible] and spongy on the surface. After this, fr[illegible] flashes of fire, like lightning, proceeded fi[illegible] mouth, followed by loud claps of thunde[illegible] such a thick cloud of ashes hovered over [illegible] that the darkness was equal to that of m[illegible] Next day, by the shifting of the wind, t[illegible] were driven another way; and the moun[illegible] ing raged after this manner about fifteen [illegible] eruption entirely ceased.

Mr. Edward Berkeley, afterwards [illegible] Clogher in Ireland, gives the following d[illegible] of an eruption which happened in the [illegible] of June, the mountain was [illegible]

duced our author, with three or four more
pany, to visit the mountain; and they ar-
the burning river about midnight, when
ing of the volcano was exceeding loud and
. There was a mixture of colours in the
ver the crater, a ruddy dismal light in the
the fiery torrent, and ashes continually
ng upon their heads; all which circum-
augmented by the horror and silence of
t, made a most uncommon and astonishing
" Imagine," says he, "a vast torrent of
e rolling along the side of a mountain, and
redible fury bearing down vines, olives,
, houses, and every thing that stood in its
The largest stream seemed half a mile
t least, and five miles long; and Mr.
walked so far up the mountain by the
his burning river, that he was obliged to
ith precipitation, the sulphureous stream
urprised him, and almost taken away his
They returned about three in the morn-
ring constantly the murmur and groaning
nountain, which occasionally burst into
eals, throwing up huge spouts of fire and
stones, which in their fall resembled the
our rockets. Sometimes there appeared
ree distinct columns of flame, and some-
ly a single one that seemed to fill the
ater. It was judged that the flames and
nes were shot more than a thousand feet
icular above the summit of the volcano;
ontinued raging in this manner, more or
the 18th, when the whole appearance
nd the mountain remained perfectly quiet.
*g this eruption*, the cinders showered
*fast at* Naples, that the citizens were
*t.*

obliged to screen themselves beneath and vessels at the distance of twenty le exposed to equal inconvenience.

In 1779, another eruption happened been particularly described by Sir Will ton in the Philosophical Transactions. tleman, during his residence at Nap opportunity of making several observa lavas of Vesuvius, and found that the formed regular channels in the mount channels, after small eruptions, wer from two to six feet wide, and abo depth; and were often hid from the quantity of scoriæ, that had formed a k over them. Sir William walked in so subterraneous galleries, which appeare curious, some being remarkably smoo on the top, sides, and bottom; and crusted with a remarkable scoriæ, beau fied with salts, in the form of dependin &c.

On viewing a stream of lava in it our author perceived that, after pass the above mentioned channels, it ex the valley, and flowed gently along, that had been frozen and had masses ing upon it. Being greatly incomm smoke, he passed over the heated walked along the side of the curre source. Here he perceived it boil out of the ground, with a hissing a noise like that of an artificial fire-w lock about fifteen feet high was fo splashing up of the vitrified matter this was an arched hollow, whence th into a regular channel, raised upon a

, nearly ten feet high, and greatly re-
n ancient aqueduct. On leaving this
William proceeded up to the crater,
found the little mountain discharging
red-hot scoriæ with loud explosions;
lerable smoke and stench of sulphur
lled him to retire.

ruption which happened in this year
e curious channels of scoriæ were de-
d the cone of the mountain was entirely
ith a stratum of lava, from the cracks of
d a sulphureous smoke, that tinged the
th a yellow or whitish tint. The pores
generally abounded with perfect vitri-
d the scoriæ, if viewed through a mag-
ss, appeared like a confused mass of
f a foul vitrification. When a piece of
va had been cracked in its fall without
rating, fibres of perfect glass might be
ing from side to side within the cracks.
of volcanic glass is of a dirty yellow co-
as much the same transparency with our
lass bottles; but when large pieces of it
off by a hammer, it appears perfectly

mmer of 1794, another dreadful erup-
place at Vesuvius, which destroyed
he adjacent villages, and was attended
surprising phenomena. According to
nt of Sir William Hamilton (who has
styled the Natural Historian of Vesu-
eruption was preceded by a powerful
n earthquake, which extended over the
he Campagna Felice, and was plainly
*distance of* forty miles.

*day (says* our author) the 15th of June,

another shock was felt at Naples, but did not appear quite so violent as that of the 12th, nor did it continue so long: at the same moment, a fountain of bright fire, attended with very black smoke and a loud report, issued from the middle of the cone of Vesuvius. Soon after, a similar one broke out at some distance lower down; and then it appeared as if the lava had taken its course directly up the steep cone of the volcano. Fresh fountains quickly succeeded, and all in a direct line, flowing toward the towns of Resina and Torre del Greco. It is impossible that any description can give an adequate idea of this fiery scene, or of the horrid noises that attended this great operation of nature. It was a mixture of the loudest thunder with incessant reports, like those from a heavy artillery, accompanied by a continued hollow murmur, like the roaring of the ocean during a violent storm; and added to these was another blowing noise, like that of a large flight of sky-rockets. The frequent falling of the huge stones and scoriæ which were thrown up to an incredible height, and one of which measured thirty-five feet in circumference, contributed to the concussion of the earth and air, which kept all the houses in Naples in a constant tremor for several hours, every door and window shaking, and the bells ringing incessantly. This was an awful moment! The sky, from a bright full moon and star-light, began to be obscured; the moon gradually seemed to suffer an eclipse, and was soon lost in obscurity; and the prayers and lamentations of a numerous populace parading the streets, added likewise to the general horror.

"*About four* o'clock in the morning of the 16th, *the crater of* Vesuvius began to show

open, by some black smoke issuing out of it,
day-break another smoke tinged with red
from an aperture near the crater; whilst a
derable stream of lava issued from the other
f the mountain, and ran with great velocity
gh a wood, which it destroyed. The conical
of Vesuvius was totally involved in dark
s; but above these we could often discern
columns of smoke rising furiously from the
, until the whole mass remained in the usual
of a pine-tree, and amidst that gigantic mass
uds, the volcanic lightning was frequently
e.

About five o'clock on the morning of the 16th,
erceived that the lava which had broke out
several new mouths on the south side of the
tain, had reached the sea, and was running
t, having overwhelmed and burnt the great-
rt of Torre del Greco. Soon after the be-
ng of this eruption, ashes fell thick at the
f the mountain, from Portici to the Torre del
o, and although there were not at that time
louds in the air, except those of smoke from
ountain, the ashes were accompanied with
drops of water, and the road was as wet as
e had been a heavy shower of rain.

By the time the lava had reached the sea,
vius was so completely involved in darkness
ve could no longer discern the violent opera-
f nature that was going on there; but the
ful noises we heard at times, and the red
on the highest clouds were evident signs of
tivity of the fire underneath.

The lava (continues our author), ran but
y at Torre del Greco after it had reached the
and on the morning of the 17th, when I

went in my boat to visit that unfort
its course was stopped, excepting thi
small rivulet of liquid fire issued fro
smoking scoriæ into the sea, discove
red hot under that surface. I obser
sea-water was boiling, as in a caldr
washed the foot of a new-formed p
and although I was a hundred yards
it, the pitch from the bottom of my l
served to melt away, and we there
hastily from this spot.

" On Wednesday, June 18, the w
for a short time, cleared away the
from the summit of Vesuvius, we disc
a great part of its crater had fallen
the ashes which before were as fine
snuff, were now of such density as t
have the greatest difficulty in forcin
sage. One cloud heaped on anothe
ceeding each other incessantly, forme
hours, such a gigantic column over th
as seemed to threaten Naples with im
struction, bending over the city, and
much too ponderous to remain long s
the air.

" Vesuvius was, at this time, con
vered with a thick coat of light
which gave it a horrid appearance;
parison of the above-mentioned mass
appeared like a mole-hill, although th
cular height of the mountain is upwa
thousand six hundred feet.

" The storms of thunder and ligh
tionally attended with heavy falls
ashes, causing the most destructive
*water and glutinous* mud, mixed with

ees torn up by the roots, continued to afflict habitants on both sides of the volcano, until h of July, when the last torrent destroyed hundred acres of cultivated land between the of Torre del Greco and Torre del Annunziata. the 30th of June, Sir William ventured to as- he volcanic mountain, but not without con- ble risk. "The crater (says he), except at intervals, had been continually obscured by s, ever since the 16th, and was so this day, frequent flashes of lightning, and attended, ual, with a noise like that of thunder. I up the usual way by Resina, and observed, sing through the village, that many of the of the pavement had been loosened, and deranged by the earthquakes. The leaves the vines were burnt by the ashes that had on them, and many of the vines themselves completely buried. In short, nothing but nd desolation was to be seen. The ashes at ot of the mountain were about ten inches on the surface of the earth, but in propor- s we ascended, their thickness increased to l feet; so that the surface of the old rugged was now become a perfect plain. We as- d to the spot whence the lava of the 15th sued, and we followed its course, which was ery hot, down to the sea at Torre del Greco, is more than five miles. The horrid is from the spot where the late eruption took in a straight line for nearly two miles toward a, cannot be imagined. They formed val- nore than two hundred feet deep, and from mile to a mile wide; and where the foun- of *fiery matter* existed during the eruption, *tle mountains* with deep craters. Ten

thousand men in as many years could n
make such an alteration on the face of Ve
has been made by nature in the spac
hours."

It has been observed, however, th
mount Vesuvius often fills the neighbou
try with terror, yet as few things in na
absolutely noxious as not to produce s
even this raging volcano, by its sulphu
nitrous manure, and the heat of its sub
fire, contributes to the uncommon fertil
country, and the profusion of fruit, ner
with which it is every where covered.
observed to be the most fertile spo
abound in sulphur, salt-petre, &c. and
neous and inflammable substances were
their fermentations and ebullition wou
ductive of the most calamitous effects
they find a vent through these volcano
rience shows, that earthquakes, after any
eruptions of Vesuvius, are neither so fre
produce such fatal effects as at oth
Hence the inhabitants are far from bei
ed at this mountain's vernal eruptions,
are not violent; and the air is so far f
rendered unhealthy by them, that Barra
at the foot of Vesuvius, near the sea,
able for its healthfulness. To these adv
may be added, that M. de la Condamine
that the above lava, or liquid matter, c
ing, forms solid masses, surpassing ir
even that of marble; whence tables,
pieces, and even snuff-boxes are m
With this matter the cities of Naples
*are paved*, as are also a great part of t
*Roman highways*.

t Etna, in the island of Sicily, appears to
en well known to the ancients, on account
ry eruptions; for Pindar speaks of it as a
, and Plato was invited by the younger
us to examine the state of the mountain
sixth eruption. It threw out flames and
ut a hundred times between that period
battle of Pharsalia, and was remarkably
while Sextus Pompeius was adding the
of a sanguinary war to its terrific devasta-
Charlemagne is said to have been at Ca-
aring one of its eruptions; and since his
e find fifteen more recorded.

respect to the dimensions of mount Etna,
remely difficult to extract any thing con-
even from the accounts of modern and
spectable travellers. Pindar, who flou-
bout four hundred and thirty-five years be-
Christian era, calls it the "Pillar of Hea-
n account of its astonishing elevation; and
moderns agree that it is extremely high
rge, but they differ excessively in their
tions; some making it eight or twelve miles
d a hundred and eighty miles round, while
educe it to about two miles in height, and
at less than ninety miles in circumference.
vestigating these different relations, and
ring their prodigious difference, we must
as our opinion, that the true dimensions of
ntain have not yet been accurately ascer-

cerning the general appearance and pro-
f Etna, authors are better agreed; and the
from Catania to its summit has been re-
described by three ingenious travellers—
Orville, Mr. Brydone, and Sir William Ha-

milton; all [illegible]om affirm, that this mo[illegible] affords an ep[illegible]me of [illegible] different cli[illegible] throughout the world. Towards the base it is extremely hot; farther up more temperate; and grows gradually more cold, till at length the traveller perceives that its head is enveloped in a mantle of eternal snow.

The top of mount Etna being above the common region of vapours, the prospects from thence are peculiarly interesting, and the heavens appear to possess an extraordinary splendor. Mr. Brydone and his companions observed as they ascended at night, that the number of stars seemed to be greatly augmented; that each of them sparkled with unusual brilliance; and that the whiteness of the milky-way resembled a pure flame shooting across the skies. To have a clear and ample prospect from this mountain, it is necessary to ascend before sun-rise, as the vapours raised by the sun in the day-time tend to obscure the circumjacent scenery. Here Sir William Hamilton and Mr. Brydone had a delightful view of Calabria, in Italy, with the sea beyond it; the Lipari island and Stromboli, a volcano at seventy miles distance, seemed to be just under their feet; the island of Sicily, with its rivers, towns, and harbours, appeared as distinct as if delineated on a map; and the pyramidal shadow of the mountain reached entirely across the island, and far into the sea on the other side, forming a visible tract in the air which is gradually shortened as the sun rises above the horizon.

Etna is divided into three regions—the *Regio Culta*, or cultivated; the *Sylvosa*, or woody; and *the Deserta*, or desart region; all of which are *plainly distinguished* from the summit. The l

gione Colta is much broader than the rest, and extends on all sides from the foot of the mountain, being bounded by the sea on the south and south-east, and on the other sides by the rivers Semetus and Alcantara. Here terrible devastations are sometimes committed by the eruptions, and the whole region abounds with little conical mountains. The *Regione Sylvosa* forms a circle of beautiful green, surrounding the mountain on every side, and variegated, like the former, by a number of mountains of a conical form, thrown up by the eruptions which burst out of the sides of the volcano. Mr. Hamilton counted forty-four on the Catania side, each having its crater, and being prettily feathered with trees, which seem to have acquired a wonderful degree of fertility. The *Regione Deserta* is marked out by a circle of snow and ice, which extends on all sides to the distance of eight miles, beginning at the foot of the crater.

In the middle of the snowy region stands the great mouth of the volcano, which Sir William Hamilton describes as a little mountain about a quarter of a mile perpendicular, and situated in the centre of a gently-inclining plain of about nine miles in circumference. In the middle of this little mountain is a large hollow, the inside of which is incrusted with salts and sulphur of different colours. From many parts of this aperture issue volumes of sulphureous smoke, which, being heavier than the circumambient air, roll down the side of the mountain, till, coming to a more dense atmosphere, it shoots off horizontally, and forms a tract in the air according to the direction of the wind. In the *midst* of this funnel is the terrible *and unfathomable* gulph, whence continually is-

sue terrible and confused noises, which, d
an irruption, may be heard at a prodigious
tance. Sir William Hamilton and Mr. Bry
found the crater too hot to admit of their des
ing into it; but M. D'Orville and his fellow
veller, having fastened themselves with
which some men held at a distance, descend
near as possible to the brink of the gulf; w
they saw distinctly a conical mass of m
which rose to the height of about sixty feet
seemed to be about six hundred feet in cir
ference toward the base. Whilst they
viewing this substance, the internal roarings
mented, and the mountain began to send
smoke and ashes, but after a momentary di
the volcano resumed its former tranquillity.

About a mile below the foot of the great c
are the ruins of an ancient structure, call
Torre del Filosofo, which some imagine to
been built by the philosopher Empedocles
others suppose to have been a temple of V
These ruins are of brick, and seem to have
ornamented with marble.

The woody region, particularly on th
side, abounds with large chesnut-trees, c
which has been called, from its extraor
size, *Castagno de Cento Cavalli*, or the ch
tree of a hundred horse. Mr. Brydon
much disappointed at the sight of this tree,
found it to be only a bush of five large ones
ing together; but his guides assured him, t
these were once united in one stem; and S
Recupero asserted, that having caused son
sants to dig round this bush of trees, h
*found all the stems united under ground*
*root. The space of ground occupied by*

measured two hundred and four feet in cir-
rence. Another of these trees, called the
*a de Galia*, rises from one solid stem to a
lerable height, and its circumference at a
distance from the ground is seventy-six feet;
Iassa, one of the most respectable Sicilian
rs, asserts, that he has seen solid oaks there
rds of forty feet round.

the foot of a mountain raised by the erup-
n 1669 is a hole, leading to several subter-
us caverns, some of which afford an asylum
ld pigeons, and others are used as magazines
ow. Here also is the river Acis (celebrated
fable of Acis and Galatea), which bursts
f the earth in a large stream, runs with sur-
g rapidity, and about a mile from its source
into the sea. Its water is remarkably clear,
eing excessively cold, and strongly impreg-
with vitriol, it is reckoned dangerous to
it.

ie great eruption of this volcano, in 1669,
out on the 11th of March, two hours
e night, on the south-east side of the moun-
about twenty miles from the old mouth, and
om the city of Catania. The noise of the
ion was heard a hundred miles off, to which
ice the ashes were likewise carried. The
r thrown out was a stream of metals and mi-
s, rendered liquid by the fierceness of the
which boiled up at the mouth like water at
ad of a great river; and having run a little
the extremity thereof began to crust and cur-
urning into hard porous stones called sci-
resembling large cakes of burning sea-coal.
came *rolling* over each other, bearing down

any common building by their weigh
ing whatever was combustible.
progress of this inundation was at
three miles in twenty-four hours, bu
it scarcely advanced a furlong in a da
it continued for fifteen or twenty d
running into the sea, close by the wal
At length it made its way over the
city, where, however, it did no cor
mage, except to a convent of Bene
its course it overwhelmed fourteen t
lages, containing three or four thou
ants; and it is remarkable, that duri
time of this eruption, which was fif
neither sun nor stars appeared.

But though Catania had this time t
tune to escape the threatened destru
almost totally ruined in 1692 by an
which was not only felt all over Sic
wise in Naples and Malta; and the
violent, that people could not stan
legs, and those who lay upon the
tossed from side to side, as if upon
low. The earth opened in several p
ing up large quantities of water; an
bers perished in their houses by the
that were loosened and rent from th
The sea was violently agitated, and
fully, mount Etna threw up vast spi
and the shock was attended with a r
ing the loudest claps of thunder
cities and towns, with an incredibl
villages, were either destroyed or gre
and it was computed that near sixty
*sons perished* in different parts of t
*whom eighteen* thousand were inh

very few escaping the general and sudden
ction of that city,
he eruption which happened in 1766, the
prung up into the air to a very considerable
t; but the stream which it formed was only
les in length, and one mile in breadth.—The
ption happened in 1787. — On the 11th
y there was a subterraneous noise, followed
copious discharge of black smoke. It was
calm till the 15th, when the same prog-
s recurred; on the 17th the subterra-
noise was augmented, the smoke issued
greater abundance, some slight shocks of
rthquake were felt, and a rivulet of lava
to flow from behind one of the little moun-
which form the double head of Etna. On
18th some new shocks were perceived,
e mountain threw out a thick smoke, which
med the eastern horizon, and was quickly
ded by showers of black sand, stones, sco-
and lava. These appearances continued till
t, but then the scene was entirely changed.
al conical flames rose from the volcano; one
e north and another on the south were par-
rly conspicuous, and rose and fell alternately.
ree o'clock in the morning the two heads of
ountain seemed to be cut away, and at their
ation was a conical flame, which appeared
two miles high, on a base of a mile and a
f diameter. This cone was still covered
a thick smoke, in which there sometimes
ared very brilliant flashes of lightning,
a jet of flaming matter was thrown to
distance of six or seven miles, and sounds
the explosion of cannon, were frequently
at a small distance. From the 29th to the

22d, these terrific appearances gradually ed, and the stream of lava was carried Bronte, and the plain of Lago. Subseque eruption, the top of the mountain on the side was covered with hardened lava, stc scoriæ, and travellers were dreadfully ann smoke, showers of sand, nephritic vapours cessive heat. The lava on the western the mountain had evidently been in a st sion: and the odour which rose from o spiracula was that of liver of sulphur.

We are informed by Dr. St. Clair, th side of one of the Apennines, between Flor Bologna, there is a spot of ground about f in diameter, whence issues a constan which rises very high, and gives a great l without noise, smoke, or smell. In las heavy rains it sometimes intermits, but i with augmented heat and vigor. The doc that corn grows within a few yards of it conjectures the flame arises from a vein of or naptha. There are other fires of t upon the same mountains.

The Solfatara, near Pozzuoli, in the of Naples, is a remarkable hill, with a an oval form, from several parts of whi a thick smoke or steam, and sometime The surface of the ground is always ver and in summer-time is covered with a salt or dust, which they sweep together, and coppers filled with water, and placed ove subterraneous spiracles, which, without a fire, evaporates the water, and leaves behind.—It is said that by an earthquake *happened in the* year 1538, a vast qu *earth and ashes* was thrown up from the

formed, about three miles from thence, a
ill, called Monte Novo, or the New Moun-
pon the ruins of a town overwhelmed by
uption.

thquakes are certainly the most formidable
mena in nature, but with respect to their
, naturalists are much divided, some ascrib-
m to water, others to fire, and others to air;
ll of them with some reason, though fire
to be the chief, for those countries which
the greatest store of sulphur and other
mable matters are most subject to earth-
. Dr. Lister is of opinion, that the mate-
se of thunder, lightning, and earthquakes,
same, viz. the inflammable breath of the
, which is a substantial sulphur, and takes
itself. Dr. Woodward, who ascribes earth-
to the subterraneous heat of fire rarefying
velling the waters of the abyss, till it can
vent, observes, that the effects of these com-
s are not very remarkable, except in coun-
at are mountainous, and consequently stony
vernous underneath, since the fire naturally
to those caverns where it meets with the
t reception, and the strata of stone making
pposition, the shocks are more violent and
cts more terrible, than when they happen
t gravel, sand, or such loose matter as
ittle resistance. Hence it is that Italy, Si-
&c. are so often alarmed with earthquakes,
ountries being mountainous and cavernous,
ing with stone and marble, and affording
uantities of sulphur, and nitre.—The same
is author adds, that Etna, Vesuvius, and
Jeanos, are only so many spiracles, serv-
*discharge the* subterraneous fire when pre-

ternaturally assembled; and that if thi
come at these spiracles without any obst
easily passes out, from time to time, with
ing or disturbing the earth; but when
nication is wanting, or too confined, it h
shakes the earth till it has made its
mouth of the volcano. He farther obse
there is scarce any country much ann
earthquakes that has not one of these fi
which when an earthquake happens is
in flames, disgorging that fire, which,
derneath, was the cause of the disaster
the countries that have these volcanc
they are troubled with earthquakes
suffer much more if such spiracles were
and the fire should continue imprison
bowels of the earth.—To illustrate the
nature in the production of earthquake
not be improper to observe, that artificial
be made by mixing twenty pounds of i
with an equal quantity of sulphur, and
the whole together with a little water,
form a mass half dry, half moist. This
ried three or four feet in the ground wi
surprising effects in six or seven hours
the earth will begin to tremble, crack, a
and at last send forth fire and flame, s
semble (if the quantity of matter were
a natural volcano.

About two miles from Naples, near t
Agnano, is a famous little cave, called
Cani, (from the frequent experiments n
on dogs) the bottom of which is cover
thin suffocating vapour, visible to a disce
The sides of the grotto, as high as th
*reaches, (which is* about a foot) are of

above this mark the air is not in the
ve or injurious: but if a dog, or other
forcibly kept below it, the noxious
ıtly throws him into convulsions, and
ıutes scarcely any signs of life remain.
the creature be taken out in time, and
open air, he soon recovers, and parti-
rown into the adjacent lake. This
such a nature that gunpowder will not
t; and it extinguishes lighted candles,
or matches.

village of Sassa, about eight miles
ano, is another little cave called Grotta
or the Grotto of Serpents, which
s, is large enough to contain two per-
s perforated with several fistular aper-
st like a sieve; out of which, at the
f the spring, issue a vast number of
rious colours, but not endowed with any
oisonous quality. In this cave persons af-
an elephantiasis, leprosy, palsy, gout,
xposed naked; where a perspiration
l by the warmth of the subterraneous
l the serpents clinging all round them,
sucking the parts affected, they are
their vicious humours, and by conti-
practice for some time, the distemper
emoved. It is said that this cave was
discovered by a viper, who was go-
mur to some baths thereabouts, and be-
ed, happened to creep into it for a
finding it very warm, he pulled of his
being weary and sleepy, had the good
to feel the serpents about him till they
t his cure. Kircher visited the grotto
nd it warm, and heard a hissing noise

in the holes, and though he did not see the pents, it not being the season of their cre out, he saw several of their exuviæ in the g and abundance of them hanging upon a neigh ing elm

What is called the Grotto of Pausilypo is terraneous passage cut through a hill of that between Pozzuoli and Naples. It is above a mile long, twenty feet broad, and twice a at each entrance, but grows lower by deg for the better admission of the light. This was anciently very dark and dusty, which i veniences have been in some measure rem by making openings at the top, and pavir bottom of it; but still it is a troublesome a dious passage. Bishop Burnet says, that the dug out here is good for building; which ma probable that this cave was not originally c a road, but was a quarry of stone.

The grotto or cave near the lake Av where the famous Cumæan Sybil is said to delivered her oracles*, is an amazing work, hewn out of a hard rock. It is seven hu feet long, twenty broad, and about eighteen and at the end of this great cave there is a n passage, two hundred feet in length, and in height, which leads to a kind of apar consisting of three little rooms, where are remains of Mosaic work, and a fountain of water, in which the Sybil is supposed to

* The Sybils, among the ancients, were virgin posed to be divinely inspired, who, in the height o enthusiasm, gave oracles, and foretold things to The Sybilline oracles were also held in great vene and the books wherein they were written we

[redacted] which she [redacted], any more than the

of the most famous cataracts in Italy, at ıce from the Alps, is that called Cascata .rmore, from the mountain down which the falls, being almost entirely of marble. It the duchy of Spoletto, in the road to Terni, vhich it is about three miles distant. This ing on the side of a mountain, from which t, is extremely dangerous from the slippe- of the rock, and the frightful height of the

nans with infinite care, nothing of moment be- ertaken without consulting them. When these esses received their pretended inspirations, oks grew wild, they were siezed with violent ıgs, and all the symptoms of madness and dis- . Thus Virgil describes the Cumæan Sybil when ıg the divine Affiatus.

— Subito non vultus, non color unus,
comptæ mansere comæ; sed pectus anhelum,
aie fera corda tument, majorque videri,
nortale sonans, afflata est numine quando
ıropriore Dei————

ÆNEID, VI.

olour chang'd, her face was not the same,
ollow groans from her deep spirit came;
air stood up, convulsive rage possess'd
embling limbs, and heav'd her lab'ring breast;
er than human kind she seemed to look,
with an accent more than mortal spoke;
taring eyes with sparkling fury roll,
*all the God* comes rushing on her soul.

DRYDEN.

precipices; but on reaching the summ
mountain, the traveller is sufficiently re
by the view of this stupendous cataract;
river, after running some miles with a
course, reaches the declivity of its channe
is shaded with many thick trees, cover
perpetual verdure, as are also the mount
which this is surrounded, and then it p
with a very rapid course, till at last it ru
petuously down a steep rock, about three
feet high, falling on other rocks, against
the waters dash and break, rising in mists
after hovering some time in the air, far al
level of the cataract, fall in a perpetua
down into the adjacent valley. After
the waters rush into the cavities of the ro
then foaming, burst through several openi
after rolling for some time down other pr
at last reach the bed of the river at the bott
Smollet observes, that such a body of wat
ing down a mountain, the smoke, vapo
thick white mist which it raises, the doub
bow which these particles continually
while the sun shines, the deafening soun
cataract, the vicinity of a great number
stupendous rocks and precipices, and t
ing, boiling, and foaming of the rivers N
Velino, below, produce altogether an o
tremendous sublimity: yet much of its effe
for want of a proper point of view whence
be contemplated. The cascade would
much more astonishing, were it not in so
sure eclipsed by the superior height of th
bouring mountains. There is no front per
but the spectator is obliged to view it
*on one side, standing* upon the brink of

h cannot be approached without emo-
ror.

l be tedious to enumerate all the me-
ings in Italy and the neighbouring
even those which are found in the
f Naples. The country abounds with
mpregnated with sulphur and other mi-
ch are frequented for many distempers,
the gout, rheumatism, &c. About a
Viterbo are several springs on the side
which have a sulphureous and brackish
the water is so hot as to harden eggs, or
:ald the hand. They are surrounded
w wall, and send out four streams or ri-
) other receptacles, where the heat of
is considerably abated. Dr. Breynius,
them, wondered that they were so
;lected; though he would not advise
em internally, on account of the great
f calcareous particles they contain.

uchy of Modena are several springs or
n the surface of which is gathered a sub-
mable, mineral oil, of a fragrant bitu-
nell, and of different colours. This is
roleum, oil of petre, or rock-oil, because
tly issues from the clefts of rocks, and
;s on which it floats are generally found
y mountains. Near a place called Fru-
e inhabitants dig wells to come at these
gs, and find in those at the bottom of the
ge quantity of red oil, but those near the
a white oil, as clear as water. There is
rock near the Apennines, in the same
whence rises a perpetual spring of water,
) *this oil* swims in such quantities, that
*unds of it* are gathered every week.

In the sea near the foot of mount Ve
also found petroleum. During the tim
rises, the surface of the sea is, for a litt
covered with bubbles, which they skim
their boats, and afterwards set to separat
and jars; but its sources are said never t
when the weather is warm and serene.

The white transparent petroleum is
the best, next to that the yellow and the
the black is accounted the most impure
This oil is very warm and penetrating,
been recommended in rheumatic and
disorders.

The little lake near Tivoli, and the
called Salforata that issues from it, are
able for their sulphureous stench, whic
the air to a considerable distance. In the
several floating islands, fifteen or twenty ya
supposed to have been formed originally c
reous earth rising from the bottom; and t
seem to have encroached upon the lake
crustation of the same matter, which in t
probably cover its whole surface.

We shall conclude this article with a
in the island of Zant, belonging to the V
which is a spring of fresh and clear wa
frequently throws up pieces of real pit
when the water has stood to be thoroughl
a quantity of pitch is found at the bottom.
this spring it is said the people procure
about a hundred barrels, with which th
their ships and other vessels.

FOSSILS.

veral parts of Italy, and some of the
ring islands, is found the lapis asbestos,
hus, by us called earth-flax and salaman-
ol, which is a sort of fissile stone, or mine-
nce, of a whitish colour and woolly tex-
sisting of small filaments, and endued
wonderful property of resisting fire, and
g unconsumed in the most intense heat.
istry of mankind has found out a method
g this fibrous mineral, and employing it in
nanufactures, chiefly cloth and paper;
one would scarcely imagine the thing
le without the mixture of some other
tter, as wool, hemp, or flax, the threads
estos appearing too brittle for such uses.
h made of this incombustible matter was
esteem amongst the ancients, though bet-
vn and more common than in the present
Pliny asserts that he had seen napkins of
being taken foul from the table, and
nto the fire, were by that means cleansed
y had been washed in water: but it was
sed to wrap up the bodies of kings and
eat personages, that so their ashes might
erved distinct from those of the fuel,
omposed the funeral pile; and it is said
ars still make use of it in burning their
As to the art of managing the asbestos,
pinning and weaving it, &c. various ac-
have been given by different writers.
Castagnata, superintendant of some mines
found in one of them a great quantity of
ginous *mineral*, and had the skill of pre-
*in such a manner* as to resemble a fine

lamb-skin dressed white; and he could thic
thin it to what degree he pleased, so as
come either like a very white skin, or wh
per; both of which would resist the most
fire. Signor Ciampini gives us the met
spinning the asbestos, and making it int
which he thus effected. He first laid the
to soak for some time in warm water,
opened and divided it with his hands, th
earthy parts might fall out, which are whiti
chalk, and serve to bind the fibrous parts to
This operation he repeated six or seven
with fresh water, still opening and squeezi
mineral till all the heterogeneous parts
washed out, and then the flax-like parts we
in a sieve to dry. One method of spinni
asbestos thus cleansed, is to card it gentl
then lay it between the cards, so that son
may hang out of the sides. Having fasten
cards on a table or bench, take a small reel
with a little hook at the end, and a part by
it may be easily turned round. This reel i
wound over with white thread, and a small
must be in readiness, with which the fore
and thumb are constantly to be kept moist, t
preserve the skin, and to render the filam
the stone more soft and pliant; and so by
ing the thread upon the reel with the as
hanging out of the cards, some of the latter
worked up with it; and this thread may
care, be woven into a coarse sort of cloth,
being put into the fire, the thread and oil
consumed, and the incombustible cloth re
But this method being very tedious, instead
*thread it is better* to put some flax on a distaf
*by taking* three or four filaments of the

g them with the flax, they may be easily
d together, and the thread thus made will
re strong and durable. In washing the stone,
me gentleman observes, there will remain
l short pieces at the bottom of the water,
ich paper may be made after the common
d. He adds, that the best way to preserve
oth or any thing made of this mineral, which
son of its dryness is very apt to break and
, is to keep it well oiled; and when the
s put in the fire the oil burns off, and the
omes out white and purified.

ler this article we shall place the pumice-
which is frequent in Italy and Sicily, be-
rown up by the eruptions of Vesuvius and
Naturalists indeed are not well agreed
the nature and origin of pumice, some tak-
to be pieces of rock half-burnt and calcined,
ist into the sea by volcanoes, where being
d by the salt water, it acquires a whitish or
h colour. Others will have it to rise from
ttom of the sea, whence they suppose it de-
by subterranean fires; and hence they
nt for its saline taste, lightness and poro-
In confirmation hereof they also alledge,
ese stones are frequently found in parts of
far remote from all volcanoes; and add,
veral parts of the Archipelago are suddenly
d with them, after a few inward shakes and
gs of the bottom.—The pumice is of some
medicine, but much more in the arts and
actures.

everal of the Alps of Savoy, near the Gla-
is found a species of crystal, which is dis-
d by some veins that appear on the surface,
commonly of a whitish or blueish colour.

This stone is transparent, resembling a dian
but much inferior to it in hardness and lu
its shoots are of different lengths but all hexag
and terminating in a point, the other end a
ing to a sort of irregular stone, which is s
the matrix of the crystal. The rocks some
fall into the frozen valleys, where people fin
crystal on the surface of the ice.

In the Alps and Appennines the peasants
wise dig up talc, a sort of shining stone, easily
sible into thin transparent scales or leaves, a
flexible. Some talc is of a silver colour,
some yellow; but that of Venice is reckone
best, which is brought to us in large gre
stones, but when wrought becomes white an
ceedingly pellucid.

In the neighbourhood of Bologna is found a
ponderous stone, about the size of a large
nut, which being properly prepared and cal
makes a species of phosphorus. This was
dentally discovered by one Casciarlo, a ch
who having gathered some of these stone
carried them home, in hopes of extracting
out of them by fire, found that after a c
process, being exposed to the light, they ret
it in such a manner, as to shine in the da
a considerable time. We also read of a perso
had a method of making statues and pictu
it, that would appear luminous in the dar
he died without discovering the secret.

## VEGETABLES.

*AMONG* the vegetable productions of
none are more remarkable than a kind

ing chiefly in Calabria, from which in
summer, flows a white sweetish juice
alled manna, which is of great use in
being one of the mildest and safest
ı nature. There are three kinds of this
anna, one called manna di Corpo, which
st of all, and is spontaneously dis-
ɔm the trunk and large branches of
form of a crystalline liquor, hardened
of different sizes, and carefully ga-
succeeding day. The second species,
Italians call manna forzata, or forza-
ained by making incisions in the bark
in August, after the natural discharge
m these incisions the manna flows co-
n noon till towards midnight, and is
posed to the sun in order to be dried;
rt is less esteemed, on account of its
ıd yellow colour. The third species,
ına di Frondi, issues spontaneously
ervous parts of the leaves, on which
are indurated by the sun into grains
gness of wheat; but this last sort is
tly gathered, because it cannot be se-
n the leaves without the greatest diffi-

rk-tree, which grows plentifully in
ell as in Spain and other warm coun-
ort of ever-green oak, whose leaves
above and white underneath, and its
eal acorn, more nourishing to swine
the common oak. Its bark, which is
ould split and peel off of itself, being
ɔy another bark formed underneath;
*ent this* effort of nature, and to ac-
*und* even pieces of cork, it is custom-

A kind of subterraneous vegetable pr
called truffles, are very common in It
larger than in other parts of Europ
Bradley calls them Under-ground edibl
rooms, and botanists in general rank ther
the number of plants, though they seem
many of the usual parts. All we know
growth is, that they are at first no bigge
pea, reddish without, and whitish within ;
as they ripen, the white parts grow more d
black; but there still remains a number o
streaks, which all terminate at the place
the outer coat is cracked or open, and wh
probably the vessels whereby the truffles
their nourishment. In these vessels is
whitish matter, and in the middle of i
viewed with a microscope, are perceiv
round black grains, supposed to be the see
truffles.

Botanists were formerly puzzled ab
origin and production of mushrooms, be
able to discover their seed by the best
scopes; but it has been found that they
other vegetables, are produced by see
many gardeners now raise great quantities
on hot beds. Hence it is not difficult to
for the manner in which mushrooms are pr
*in different* parts of the country, and the
*found in some* spots and not in others.
*known that the* seeds of plants cannot

ry where, but only where they find certain
es fit to penetrate their coats, to excite a fer-
ntation, and to afford them nourishment. Ac-
lingly we may observe in what diversity of
es the different species of mushrooms are
duced, some of them growing only on other
ticular plants, whose trunk, bark or roots have
es proper to promote their vegetation. Hence
eems to follow, that the seeds of mushrooms
scattered in numberless places where they
not vegetate, in a word, over all the earth;
the same may be said of many other plants.—
o the invisible seeds of plants we join the in-
ble eggs of insects, we shall find the earth
d with an inconceivable infinity of vegetables
animals, perfectly formed, and waiting only
certain favourable circumstances to enable
n to make their appearance. How rich then
st be the hand that has sown with such pro-
on!

Truffles lie commonly about half a foot be-
the surface of the ground, and sometimes
per. They are tenderest in the spring, but are
t easily found in autumn, when the wet
lls them, and the thunder and lightning dis-
es them to send forth their scent, by which
swine frequently discover and grub them up,
nce they are called swine bread by the com-
n people. In Italy they are reckoned a great
ty, either fried in slices with oil, salt, and
per, boiled in soup, or pickled. Some persons
t them in ashes like potatoes, others pulverize
mix them in sauces.

Though some of the Alps and Apennines are
barren and rocky, yet many of them are
y clothed with oaks, pines, chesnut-trees,

walnut-trees, &c. and others abound wi
of ever-greens and beautiful shrubs,
with wild thyme, marjoram, and other
herbs and medicinal simples.

## ANIMALS.

THE Alps and other mountains of
stocked with various kinds of quadrup
as wild boars, wolves, deer, hares, ral
which are too well known to require a de
but there are some with which we are
quainted, and therefore deserve our noti
Marmot, is a kind of rat inhabiting th
summits of those mountains, and feedin
little grass and wild herbs they afford.
mal is about sixteen inches in length, s
some resemblance both to the rat and
having a large flattish head, short ea
thick bushy tail. The colour is brown
and bright tawny on the under parts. A
end of September they retire into their ho
are formed with astonishing art and p
They do not make a single hole or st
but a kind of gallery in the form of
branch having an aperture, and both te
in a capacious apartment. One of the
which rises above the principal apa
merely used as an entrance; but the
kind of aqueduct, which carries off
rities.

Sensible of the necessity of providi
the inclemency of approaching winter,
*gular animals lay up* reat store of mo

he heavens are illumined with the cheer-
ns of the sun, and the earth is crowned
xuberant vegetation. It is affirmed that
our is carried on jointly; that some of
e foragers cut the finest herbage, which is
d by others; and that they alternately
; vehicles for conveying it to their subter-
caves. One, it is said, lies down upon
, allows himself to be loaded, and extends
bs; while others drag him along by the
he repeated frictions occasioned by this
ire assigned as a reason why the hair is
ly rubbed off their backs; but some
are of opinion, that this effect is produced
uently digging in the earth. Whilst they
oloyed in cutting grass or gathering moss,
them stands centinel upon an elevated
ınd, upon the first appearance of danger,
loud whistle, which warns his companions
ide for their safety by a precipitate re-

ıey continue torpid during the winter, they
no provisons in their apartments; but
ıey feel the first approaches of the sleep-
son, they close up both the passages to
abitation, with such labour and solidity
is easier to dig the earth any where else
the parts they have thus fortified. At
e they are said to be so extremely fat, that
ill weigh nearly twenty pounds; but they
ly decline, and at the end of the winter,
ch emaciated. When discovered in their
retreats, they appear rolled up in the form
ll, and are so completely torpid that they
: killed *without* seeming to feel the least
ı *of pain*.

The marmot is naturally inoffensiv
when apprehensive of being pursued, w
milies quit their dwellings, and wander fr
to place, although they have consequen
habitations to construct. But when they a
by enemies, and flight appears impra
they defend themselves with astonishin
and fury.

In their wild state the old marmots, at
day, come out of their holes to feed, wh
young ones chace each other over the r
on their hind legs, and remain in that
facing toward the sun, with an air ex
of satisfaction. They are particularly
warmth, and, when they think themselve
will bask in the sun for several hours.

When taken young, the marmot is ea
mesticated; and may be taught to wal
hind feet, sit upright, dance with a stick
its paws, and perform various other t
please its master. It has a remarkably
antipathy however, to dogs, and will r
attack from the most formidable animal
species. During winter, the marmots a
in great numbers by the Italian peasantr
reckon their flesh very delicate, and their
dicinal.

The Bouquetins are a species of wil
not so shaggy as the chamoise, but much
having long horns, with which they make
perate defence when they are attacked.
live on the highest mountains, seldom
down into the valleys, which makes the
of them very troublesome and dangero
when they are closely pursued, they wil
themselves down the precipices, having

cing their fall by the help of their horns,
ot to receive any hurt. The edges of
ofs are so sharp and hard, that they make
ression upon the rocks; and it is said they
ell a hunter at a considerable distance.
oyards dry their blood and preserve it, es-
it an excellent remedy for pleuritic dis-

ngst the birds that frequent the Alps and
raggy mountains, the eagle is the noblest
st worthy observation. It is the largest
st and swiftest of all the birds that live
, and its sight is quick and piercing
a proverb. It has a long hooked beak,
scaly legs, thick crooked talons, and a
il; and its plumage is chesnut-coloured
ruddy, and white. The eagle is distin-
from the hawk by his bigness, and from the
by the crookedness of his beak, which
at the tip, and blue in the middle, tho'
yellow.—These birds usually make their
the highest rocks, conveying thither to
eir young not only partridges, pheasants,
cks, &c. but even hares, lambs, kids,
or whatever prey the neighbouring coun-
rds. If the rock where the nest is built
quite inaccessible, it is usual for the shep-
o climb up to it, and take away the pro-
from the young eagles while the old ones
ent, leaving the entrails of animals, or
od in place of what they take; and thus
es of some Italian gentlemen are supplied
e best of game, though it may probably
een deprived of a leg or a wing, by the
anness of *the* parent eagle or her offspring.
*ley mentions* an eagle's nest, found near

the river Derwent in 1668, consisting of sticks, one end whereof was laid on a rock, a other on two birch-trees. It was two yards s and had a young eagle in it, with the carc one lamb, one hare, and three grygalli.- will eagles only seize upon lambs, kids, & even children too, if they have an opport as appears, from an instance given us by Si bert Sibbald, of an eagle that took up a youn at a place called Houghton-Head, and carr to its nest in Hoy, one of the Orkney i four miles distant; but being immediate lowed by four men in a boat, who knew the nest was, they brought back the cl hurt.

In considering the minuter part of the creation we find nothing in Italy more than the Tarantula, a venomous kind of sp tinguished from all the other species b hairy body, and its thick ash colou which are marked with blackish rings or part. It lives in fields, and its habitati four inches deep, half an inch wide, [illegible] with a net. These spi

particular respecting this matter, and al-
l he was told that the season was not suffi-
advanced to gratify his curiosity, he pre-
upon a woman who had formerly been bit-
dance the part before him. Several musi-
were accordingly assembled, and she per-
the dance, as the by-standers assured him,
fection. At first she lolled stupidly on a
while the instruments played a solemn
but when they touched the chord sup-
:o vibrate to her heart, she sprang up with
: hideous yell, staggered about the room
drunken person, raising her hands alter-
and moving in very true time. As the
grew brisker, she skipped about with in-
l vigor, and in a variety of steps, now and
ırieking with great violence. The scene
: unpleasant, and at our author's request an
ıs put to it before the woman was tired.

same gentleman informs us that when
tients are to dance they are dressed in
with red, green, or yellow ribands; and
into a place which is hung round with ri-
ınd bunches of grapes. He says, they are
opies of the priestesses of Bacchus; and
:s that as all public exhibitions of heathenish
ere abolished by the introduction of Chris-
the Puglian dames contrived other pre-
.o retain their darling amusements, and that
strength of the Tarantula's poison they
oy their old dance, though time has ef-
ıe memory of its ancient name and insti-

inconvenience, common to all Italy, is
itence of swarms of lizards, especially of
*en-kind.* Hundreds of these little ani-

meter; its roof is vaulted in form of a cupola, but open at top, whence the st ceives all its light. The walls are l marble. The portico is exceedingly ma ing supported by sixteen tall columns of granite, each consisting of one stone, rinthian order; and the gate is forty and twenty wide. The Pantheon wa Agrippa, son-in-law of Augustus, as app inscription still remaining over the porti

Mr. Smollet, contrary to the opinio travellers, confesses himself disappoint sight of this structure; but observes, portico which Agrippa added to the bu undoubtedly very noble, though, in his it does not correspond with the simplic edifice. That ingenious gentleman com structure to a plain unpierced cylinde cular wall, with two fillets and a cornic a vaulted roof, or cupola, open in t twenty-nine feet in diameter; and add wonders Pope Urban VIII. who cause lumns to be gilt, and also added tw towers to the rotunda, did not cover t hole with glass, as it must be very inc and disagreeable to those who go to c low, to be exposed to the rain in we which must also render it very damp wholesome.

The Temple of Fortune has withsto juries of time, and is now a Christian ch is also the Temple of the Sun, or of Ves is a small round structure, receiving its a hole in the top, after the manner of *Rome*. The church of St. Stephen, *Celio*, was formerly the Temple of Ve

ge round edifice, supported by two circles
ırs, one within the other, the pillars of the
ost circle being less than those of the inner-
and just twice the number.

hout the walls is the church of St. Con-
, originally a Temple of Bacchus, which
s almost entire, and has suffered little al-
ı. It is likewise of a circular form, sus-
by twelve large pillars without, and twelve
ones within. The tomb of Bacchus is of
ry, adorned with vine branches, boys
g grapes, birds, and other animals, in bass-
The roof is also adorned with mosaic work,
enting bunches of grapes, and several
relating to the vintage: but some persons
: that these ornaments are not so ancient as
ıple itself.

the Temple of Peace there are scarcely
mains, except three arches; but by tracing
ndation it appears to have exceeded all the
emples of Rome in its dimensions. "The
ience of the Romans," says Mr. Smollet,
not so conspicuous in their temples, as in
heatres, amphitheatres, circusses, nauma-
queducts, triumphal arches, porticoes, and
e, or bathing places. A great number of
emples were small and inconsiderable; not
f them was comparable either for size or
ficence to the modern church of St. Peter
Vatican; for even the famous Temple of
r Capitolinus, was but two hundred feet in
, and one hundred and eighty-five in
h; whereas the length of St. Peter's ex-
to six hundred and thirty-eight feet, and the
h to *above* five hundred."

*he triumphal* arches remaining in Rome,

there is one very entire, which was erec
Septimius Severus in memory of his Parthia
quests. It is of marble, and adorned o
side with bass-reliefs, representing the vict
that emperor, and the under part of it is
wrought with a variety of flowers. But th
of Constantine the Great, though son
broken and defaced, is the noblest struc
this kind in Rome, and perhaps in the
world. It was erected by the senate, on a
of Constantine's victory over the tyrant M
tius, and was beautified with excellent
and bass-reliefs, representing his most men
actions: but the heads of several of these
have been broken off, and removed to Flo
The arch of Titus, erected in memory of h
ing and destroying the city of Jerusale
more defaced than either of the former; b
may still discern upon it a representation
river Jordan, and many of the spoils of Sol
temple.

There are four columns in Rome, th
remarkable for their antiquity and excellent
manship, particularly that erected in hon
the emperor Trajan, which is about a hu
and thirty feet high, exclusive of the pedest
consists of large pieces of white marble,
within, and so curiously cemented, as to
but one entire stone. Within it there is a
ircase up to the top, to which the light
ifted by many little windows; and the
adorned with fine bass-reliefs, representi
eat actions of the emperor. Instead of a
rn at the top of it, in which his ashes were
*ited, there* is now a statue of St. Peter.

*The column* of Antoninus Pius is high

that of Trajan, but inferior to it in the beauty of the workmanship. The emperor's statue was formerly placed on the summit, but this has been succeeded by one of St. Paul. The ornaments on the outside are of the same nature as those on the Trajan column; and amongst other historical pieces, there is a figure of Jupiter Pluvius sending down rain on Antoninus's fainting army, and thunder-bolts on his enemies; which seems to be a great confirmation of the following anecdote.

In one of Antoninus's expeditions, when his army was surrounded by the enemy, and ready to perish for want of water, a legion, consisting of Christian soldiers, obtained by their prayers, a plentiful shower of rain, and at the same time a terrible storm of thunder and lightning, which destroyed great numbers of the enemy's army, and made way for a complete victory.—Mr. Addison has given a translation of a beautiful passage in Claudian, describing the effects of this tempest.

When, with descending show'rs of brimstone fir'd,
The wild Barbarian in the storm expir'd.
Wrapt in devouring flames the horseman rag'd,
And spur'd the steed in equal flames engag'd.
Another pent in his scorch'd armour glow'd,
While from his head the melting helmet flow'd:
Swords by the lightning's subtil force distill'd,
And the cold sheath with running metal fill'd.
No human arm its weak assistance brought,
But Heav'n, offended Heav'n, the battle fought.

The columna rostrata is a curious piece of antiquity, having been erected to the honour of Caius Duilius, for a signal victory gained over the Carthaginian and Sicilian fleets, above two hundred and fifty years before the birth of our Saviour. It was adorned with the beaks of the

vessels taken in the engagement, and has
scription on its base, but great part of it
illegible. The milliary column, whence t
mans reckoned their miles to all parts of I
still to be seen at Rome. It is of white
about eight feet high, and formerly stood
Forum Romanum, but is now removed
capitol.

Of the great number of obelisks that w
ancient Rome, the most beautiful now rem
stands in the piazza before St. Peter's
whither it was brought from the Circus of
after it had lain buried in ruins for many a
is one entire piece of Egyptian marble, s
two feet high, twelve feet square at the ba
eight at the top, and is computed to weigh
four hundred and seventy-eight tons, an
posed to be upwards of three thousand yea
Notwithstanding its immense weight,
erected on a pedestal thirty feet high,
celebrated architect Dominico Fontana,
pontificate of Sixtus V. with vast expen
labour, and to the astonishment of all the
tators.

The obelisk which stands before the ch
St. John de Lateran, is the tallest in Rome
a hundred and eight feet high without the
tal, nine feet and a half at the base one wa
eight the other. On each face of it are
rows of hieroglyphics, a sort of mystic figu
racters, used by the ancient Egyptians
the secrets of their theology. It is su
ave been consecrated to the sun in the
ebes, about twelve hundred years b
hristian era; and having been sent to
the son of the emperor Constantine,

e Circus Maximus, where it was found
the ruins, and broken into three pieces.
s were then cemented and placed in their
situation.

is another fine obelisk, which was
from Heliopolis in Egypt, and likewise
g time broken to pieces among the ruins
ame circus, till it was joined together,
ted in the Piazza del Popoli by the direc-
the aforesaid Fontana. As to the other
in Rome, they are of a smaller size, and
them seem to be merely tops of obelisks
ff; but the hieroglyphics upon them are
ble proofs of their antiquity.

e ancient theatres and amphitheatres in
we find only the ruins of four remain-
some small vestiges of the theatre of
part of the theatre of Marcellus, of the
eatre of Statilius Taurus, and of that of
ow called the Coliseo. The latter edifice
only remarkable for the beauty of its ar-
e, but for its dimensions and admirable
nce, having seats capable of containing
ve thousand spectators. It was of an
re within, and adorned with representa-
the several provinces of the empire, in
lle of which stood a statue of Rome, hold-
lden apple in her hand.

circi were large structures, either of an
r oval form, built for the celebration of
games and exercises; but of these there
rely any traces remaining. It is pos-
owever, to discern the form of the Circus
s, which was built by Tarquinius Priscus,
nged to such a prodigious extent by suc-
princes, as to contain in their proper seats
lred and sixty thousand spectators.

There are still some remains of seve
or baths of the ancient Romans; bu
considerable are those of Antoninus,
sian. The ruins of the former look mo
of a town than of a single fabric; a
the latter are near a mile in compas
not to be wondered at, if we consider
contained cells sufficient for two tho
hundred persons to bathe at one time,
ing seen by each other. They were ad
all the charms of painting, archite
sculpture; the pipes for conveying the
of silver; and many of the lavacra w
cious marble, illuminated by lamps of c

The aqueducts were some of the
most useful designs of the Romans, b
which conveyed water to ancient Rom
only small parts remaining; except of
Aqua Virginis, which, being repaire
Nicholas V. is still in use, and known b
of Fonte di Trivio. The old aqued
Paul V. restored, brings water from a
of springs, almost forty miles distant.

Of the mausolea or funeral monume
trious persons, there are few in Rome
nity that are remarkable enough to re
scription. That of the emperor Adria
part of the castle of St. Angelo, but
its statues and other ornaments. Th
Caius Sestius is a square pyramid of
covered over with white marble; and is
having been repaired by Pope Ale
VIIth. It is a hundred and twenty fee
a hundred broad at the base. Th
*ugh a narrow* passage, which
*room*, adorned with figures
*vessels*, and other ornaments

been ancient repositories of
lead; but whether originally dug by the Hea-
s or the primitive Christians has been much
uted by the learned. Each alley or passage is
:t four feet broad, and six or eight feet high,
are not only carried on in a straight di-
on to a surprising length, but have others
ing off every way like so many streets of
ty. On the sides of these alleys were the
es or graves where the dead bodies were
sited, lengthwise, three or four rows one over
her, parallel to the alley. Each of these
es was just capable of receiving one body,
had its mouth closed with large tiles, and
etimes pieces of marble cemented together,
curious manner*. On some few of these
is found the name of the deceased person;
frequently a palm tree, engraven or painted.
me places there are little grottos or chapels
n out of the rock, going off from the com-
gallery, which have niches all round them;
are sometimes adorned with old mosaic work

Bishop Burnet, who saw both the catacombs of
e and Naples, gives a particular description of the
, which are much more lofty and spacious than
rmer, the alleys being generally about twenty feet
l, and fifteen high; and instead of three or four
of niches, as in the Roman catacombs, there are
seven in those of Naples. But he saw no signs
y thing intended to close up these niches when the
s were laid in them; so that they must have been
unwholesome places, where some thousands of
s lay in a putrescent state, without any thing to
in so loathsome a sight and smell, for the niches
*too low for* coffins.

could carry on such a vast work unkno
persecuting governors, considering the
of hands that must have been employe
mountains of rubbish brought out of t
gious caverns, so likewise is it absur
they could hold their assemblies amidst
ance of stench and corruption. It i
more reasonable to suppose, that the
were originally the common sepulchres
cient Romans, and were not used afte
tom of burning the dead was introduce
them, unless for slaves and the mea
people.

Laying up bodies in caves was a ve
way of disposing of the dead, and
have been propagated by the Phœnici
ever they sent their colonies. When a
or was killed in a foreign expedition, i
to burn his body, in order to bring
ashes, and thereby oblige the manes
follow, that so his country might not b
of the benefit of his tutelage. This
thinks was the origin of burning the d
was gradually adopted by all who co
espeace.

The noble amphitheatre of Veron
ved of any structure of that k
it being still almost entire. It
having forty-four rows of se

placed one above another, each being eighteen inches high, and as much in , so that the whole would conveniently twenty-three thousand spectators.

city of Rimini still contains several monu- f its ancient splendor, particularly a fine bridge of five arches, begun by Augustus shed by Tiberius. A triumphal arch built ustus, which is likewise of marble, serves nt for one of its gates, though part of it royed. Here is also a suggestum, (re- g the pedestal of a pillar) from whence is said to have harangued his soldiers after the Rubicon.

perhaps no part of Italy, except Rome, s more with remains of antiquity than the ourhood of Pozzuoli and Baia, amongst are several pillars standing in the bay, in depth of water, which are commonly d a part of Caligula's bridge, though some us travellers have made it appear, that they ed the arches of a stately mole, built for ence and convenience of the harbour.

Piscina Mirabilis, or Wonderful Fish-pond, prodigious work, which seems to have reservoir of water, supported by forty- rge pillars, all hewn out of the rock. It undred and fifty paces long, thirty high, ty broad, and is laid over with old plaster, hard as stone itself. Some ascribe this Nero, though others say it was built by a, to preserve water for the use of his The other curiosities in this neighbourhood Centum Cameræ, or Hundred Chambers, *great number* of large rooms cut out of a *d covered* over with plaster; the houses

and sepulchre of Agrippina, the mother of Nero; that of Virgil; the ruins of the seat of Horten-sius; and those of an amphitheatre and a circus.

A noble remnant of the Via Appia runs along for about thirty miles between Rome and Naples. This highway, which was begun in the consulate of Appius Claudius Cæcus, from whom it derived its name, extended quite from Rome to * Brun-dusium, upwards of three hundred miles, and was more frequented by persons of quality amon the ancient Romans than any other in Italy. It twelve feet broad, consisting chiefly of blue sto of a cubical form, each side measuring eight inches. The strength of this pavement appe from its long duration; for it has now lasted al two thousand years, and is for several miles gether, as entire as when it was first made. Via Flaminia was another famous road of th ture, extending northwards from Rome to R and from the remains of it, which are still seen, it appears to have been paved with flints and pebbles, having on each side a of stone.

An inexhaustible mine of antique cu exists in the ruins of Herculaneum, a ci between Naples and Mount Vesuvius, w the first year of the reign of Titus, w whelmed by a stream of lava from the n ing volcano. This lava is now of a c which renders it extremely difficult to be being composed of bituminous particl with cinders, minerals, and vitrified which altogether form a close and pond the revolution of several ages, the

* Now Brindisi.

ras entirely forgotten; but in the year 1713 accidentally discovered by some labourers, in digging a well, struck upon a statue on inches of the theatre. Several curiosities ıfterward dug out, and sent to France, by ince of Elbauf; but the search was soon dis-ıed, and Herculaneum remained in ob- till the year 1736, when the king of Na- nployed men to dig perpendicularly eighty ep, whereupon not only the city made its ance, but also the bed of the river which ıough it. In the Temple of Jupiter was a statue of gold, and the inscription that ited the great doors of entrance. In the were some fragments of a gilded chariot nze, with horses of the same metal, which en placed over the principal entrance; on ıstrade which divided the orchestra from the was found a row of statues; and on each the pulpitum stood an equestrian figure of on of the Nonian family.

great variety of curious articles have also ound in other parts of this city, which are rranged in a wing of the palace at Naples, nsist not only of statues, busts, altars, in-ons, and other appendages of opulence and ; but also comprehend a complete assort- of domestic, musical, and surgical instru- ; tripods of elegant form and exquisite exe- ; lamps and chandeliers in endless variety; s, and other appurtenances of sacrifice; s of polished metal, silver kettles, cisterns ating water, and various culinary utensils; 's toilet, furnished with combs, thimbles, paint, *ear-rings*, &c. &c. Two statues; *nting a Mercury* and a sleeping Faun, are

particularly admired by connoisseurs; a
rooms are filled with handsome busts.
paintings, which, for the sake of pr
have been framed and glazed, are de
another part of the palace. A large
manuscripts were also found among the
very sanguine hopes were entertained b
rati that many works of the ancients
restored to light, and that a new mine
was on the point of being opened; bu
culty of unrolling the burnt parchment
ing the fragments on a flat surface, an
phering the obscure letters, have prove
stacles, that very little progress has bee
the work.

The streets of Herculaneum appe
been perfectly straight and regular;
well built, and generally uniform; and
paved either with large Roman bric
work, or fine marble. It appears that
was not filled up so unexpectedly with
lava as to prevent the greatest part o
bitants from escaping with their richest
there were not more than a dozen skele
and but little gold or precious stones.

The town of Pompeii was involved i
melancholy catastrophe with Herculan
it was not discovered till near forty yea
discovery of that place. One street,
been entirely cleared, is paved with
kind of stone of which the ancient
made; and narrow causeways are ra
eighteen inches on each side, for foot p
Dr. Moore observes, that the street itse
*and as the* narrowest part of the Stra
*and is* supposed to have been ch

tradesmen. The houses are small, but convenient; the stucco on the walls is ıd beautiful; and some of the rooms are ed with paintings, which appear ex- fresh, and tolerably well executed. In of the town is a rectangular building, :olonnade toward the court, somewhat ıg the Royal Exchange in London; and iderable distance is the Temple of the Isis, the pillars of which are of brick ; but there is nothing very magnificent pearance of this edifice. Few skeletons nd in the streets of this town, but in the ere were many in situations which plainly hat they were endeavouring to escape e tremendous torrent of lava overtook

a, though frequently overthrown, still some interesting remains of antiquity. ıe most remarkable is an elephant of lava, n obelisk of Egyptian granite on his back. :wise are some considerable remains of a theatre; a large bath, almost entire; the an aqueduct, eighteen miles in length; emains of several pagan temples.

mall distance from Ravenna are the re- a Roman Pharos, but its foundations are with earth for several yards. On the side of the city, where the sea formerly is a small church, called the Rotunda, at ance of which is a pagan monument, to the memory of two persons who suf- owreck. The outside of the cupola was adorned with a large tomb of porphyry, statues of the twelve apostles; but these have been demolished by a cannon ball.

other animals.

On the site of the ancient Syracuse, are
capital remains of antiquity, among which
Latomie, the ear of Dionysius, the catac
amphitheatre, and fountains, are the most re
able.

The Latomie now forms a noble subterra
garden, and may be justly reckoned among
most beautiful and romantic spots that ever cla
the attention, or employed the pen of a trav
The greatest part of it lies nearly a hundred
below the surface of the earth, and is en
hewn out of a solid rock, whence stones wer
ginally dug for the building of Syracuse; but
covered with a rich soil, and effectually sere
from every wind, it is clothed with an exub
vegetation, and amidst an astonishing varie
beautiful trees and shrubs, a spectator be
oranges, citrons, pomegranates, figs, and o
of a remarkable size and excellent quality.

The ear of Dionysius is no less a monume
the ingenuity and magnificence, than of the c
of the tyrant from whom it derived its name
a large cavern, cut out of a solid rock, in
the human ear, being about eighty feet
licular height, and two hundred and
. *By* the singular construction of t
, *every* sound was collected and unite

oint, called the tympanum, exactly opposite
nall aperture, which communicated with an
nent where Dionysius frequently retired, in
to listen to every word that was spoken in
vern below. All the labourers employed on
ork, were put to death immediately after
ad completed their task; and here were the
ted enemies of the tyrant confined, till he
ined, from listening to their conversation,
er they should be executed or set at liberty.
his curious apartment is very high in the
and now totally inaccessible, modern tra-
cannot satisfy their curiosity by an experi-
n the above-mentioned collection of sounds,
s universally agreed, that its echo is prodi-

The holes in the rock, to which the un-
prisoners were chained, still remain, and,
e of them, even the lead and iron may be
distinguished.

catacombs are but little inferior to those of
and Naples, and are constructed on a si-
plan. A few columns serve to show the
the Temple, consecrated to Jupiter Olym-
and the Temple of Minerva, which is al-
ntire, has been converted into a cathedral.
amphitheatre is in the form of an eccentric
, and is much dilapidated, but the theatre
ntire, that even the gradini, or seats, still
. Both these are situated in that part of the
lled Neapolis.

fountain of Arethusa, which has ever been
among the principal curiosities of Syra-
was formerly dedicated to Diana, whose
icent temple stood at a small distance. This
n *rises suddenly* out of the ground, and
to *the size* of a river; and many of the

neighbouring people believe that it is th
river Arethusa; which disappears unc
near Olympia in Greece, and after
about five hundred miles below the o
again in this place. In confirmation o
nion it is said, that after the great s
Olympia, the waters of Arethusa rose,
days, tinged with blood; but this, like
miracles, was probably a mere trick of
of Diana, who were doubtless interest
porting the credit of their goddess.

Near the smaller port of Syracuse is
spot where the house of Archimedes
likewise the tower from whence he is
have destroyed the Roman galleys b
burning-glasses.

The ruins of the ancient city of Agri
mostly obscured by orchards, vine
fields of waving corn. Of the temple
however, almost one half exists; a
Concord, which appears to have been
people of Lilibitani, has not lost a sin
Each of these edifices are built p
the same style, being supported by thi
columns of the Doric order on each sid
at each end.

The temple of Hercules, though nov
ruins, appears to have been much larg
former. Here were formerly a most
tue of Hercules, and a fine painting,
ing that hero, in his cradle, killing tw

At a small distance lie some fragmen
temple of Jupiter Olympus, s
the largest in the Pagan w
guished by the name of
the neighbouring peasants

nceive that such immense masses of stone ver be raised by men of an ordinary size. agments of the columns are indeed prodi- and give a vast idea of the fabric.—Here e some remains of the temple of Juno, formerly contained one of the finest pictures uity from the pencil of Zeuxis. Among a of catacombs and sepulchres is a monu- f Tero, (one of the first of the Sicilian ty- which is nearly entire, although the inscrip- e totally obliterated.

convent of Capuchins, about a mile distant alermo, is a curious old burial-place, con- of a vast subterraneous apartment, divided veral galleries, the walls of which are hol- out into niches; all filled with corses set on gs, and fastened to the inside of the recess. re all dressed in their usual apparel, and truly venerable assembly; for although of them have been dead upwards of two d years, their skin and muscles, by a cer- eparation, have been rendered perfectly dry d; and they are even said to retain a strong s of their original features. "Here," says ydone, "the people of Palermo pay frequent to their deceased relations; recal, with a holy pleasure and regret, the scenes of their ; and familiarize themselves with an idea future state." Some of the Capuchins sleep galleries, and pretend to be indulged with onderful revelations; but few persons cre- assertions.

BUILDINGS.

THE cathedral church of St. Peter's at Ro
is esteemed a master-piece of modern architect
and strikes the spectator with admiration
pleasing astonishment. The circular area w
lies before this magnificent edifice is encompa
by a beautiful peristyle or colonnade, consi
of two hundred and eighty-four marble pill
the Doric order, which support an archi
adorned with a vast number of statues of
and martyrs. The obelisk already men
and a fine fountain on each side of it, are gr
ditions to the beauty of this spacious cou
whence there is a flight of steps to a grand
that leads into the lofty portico before the
Over this portico, which is supported b
eighteen feet in circumference, are the
our Saviour, and the twelve apostles; a
is also a fine balcony, where the popes a
ed in view of all the people. The ho
church, as well as the cupola, which
with curious mosiac work, is sustaine
square pillars, like those of St. Paul'
in London; and under the middle of
stands the high altar, which is ni
height, being a kind of pavilion, s
four wreathed columns of brass, ado
liage; and on the top of the canop
gels of gilt brass, holding festoons o
beautifully carved; and between th
of children playing on the cornice.
the dome is by a winding stair-c
thence to the ball by an incommo
chairs, which lies between the c
dome. The height from the p

of the cross is four hundred and thirty-two feet. the diameter of the ball is eight feet four s. St. Peter's chair is made of gilded brass, upported by four gigantic figures, represent- ur fathers of the church, with a glory over extending quite to the roof. Under this s an altar, and on each side are stately mo- ts of brass and marble, of excellent work- p. It is scarcely possible to describe the nd beauty of the little chapels and altars his church; yet the gilding, carving, paint- mbossed work, brass and marble statues, e so well contrived and disposed, that the ce occasions not the least confusion, es any thing appear superfluous. But all the ornaments of this cathedral, none our attention more than the mosaic pic- hich represent several pieces of scriptural clesiastical history, and exceed any thing kind that ever was done by the ancients.

it may be proper to inform the reader, saic work is an assemblage of little pieces marble, or precious stones, of various co- ut square, and cemented on a ground of imitating the natural colours and degra- of painting. In this sense it includes in- rk, veneering, &c.; but in its more pro- restrained sense it only comprehends f stone, metals, and glass, those of wood istinguished by the name of marquetry. saic of marble, which at present is most erves for the pavements of churches and and the incrustations of the walls of edifices; but that of precious stones is so e, that it is seldom used unles, in small uch as ornaments for altar-pieces, rich

tables, &c. The mosaic work so much ad
in St. Peter's is done with coloured glass,
kind, though now little used, is extremely
liant and durable. It is laid on a sort of p
composed of lime, fine brick-dust, gum-traga
the whites of eggs, and other ingredients
pieces of glass being arranged with so muc
ness, and the light and shadow so well obse
that they appear as smooth as a table of m
and as highly finished as a painting in Fresco
this advantage, that they have a fine lustre
will last almost for ever, whereas time e
all other kinds of painting.—There is anoth
of mosaic work, of a more modern invention
any of the former, made with a kind of gyps
talc, found in the stone quarries near Paris. C
talc, calcined in a kiln, beaten in a morta
sifted, they form a sort of artificial marbles
tating precious stones, and of these comp
mosaic work, little inferior to the natural
either in point of lustre or durability.

Mr. Smollet, speaking of this church, i
travels through Italy, says, "the piazza is
ther sublime. The double colonnade on
side extending in a semi-circular sweep
stupendous Egyptian obelisk, the two foun
the portico, and the admirable façade o
church, form such an assemblage of magni
objects as cannot fail to impress the mind
awe and admiration: but the church would
produced a still greater effect, had it bee
ded entirely from the buildings of the Va
would then have been a master-piece of
ure, complete in all its parts, entire and
: whereas, at present, it is no more t
*autiful member* attached to a vast undigest

e of building. The great picture of
, and that of St. Peter's bark, tossed
best, which appear over the gate of
though rude in comparison with mo-
, are nevertheless great curiosities,
ered as the work of Giotto.
ne of the great altar, consisting of
ed brass pillars, gilt, supporting a
oubtless very magnificent, but rather
d with sculpture, fluting, foliage,
d figures of boys and angels, which
dred and twenty-two lamps of silver
burning below, serve to dazzle the
ndle the devotion of the ignorant
er than to excite the admiration of a
erver.
othing, however, in this famous struc-
rthy of applause, as the admirable
d proportion of its parts. Notwith-
the carving, gilding, basso-relievos,
urns, statues, columns, and pictures,
it abounds, it does not, on the whole,
crowded with ornaments. When you
our eye is filled so equally and regu-
othing appears stupendous, and the
considerably smaller than it really is.
f children, that support the fonts of
when observed from the door, seem,
natural size; but as you draw near,
e they are gigantic. In the same
figures of the doves, with olive-
their beaks, which are represented
appear to be within your reach; but
ach them, they recede to a consider-
*if they* had flown upwards to avoid

Next to St. Peter's the cathedral
Milan is reckoned the most magnifice
in Italy. It is a vast Gothic edifice
hundred feet in length, and two
breadth, and is all of marble. A h
sixty pillars of white marble suppor
roof, each of them valued at ten thou
The choir is wainscotted, and adorned
tiful carved work, representing the his
gospel. The high altar is very sun
majestic; and here are two noble bra
each of them running round a large
balcony, and supported by huge fig
same metal. As to the statues aboutt
their number is prodigious, many of th
as life, and of exquisite workmanship
who make them amount to eleven tho
include in the computation every part
in the historical pieces, and all thos
that are frequently placed about the
tues.

The cathedral of Florence is one
superb and beautiful structures in
walls and pavement being of marble
colours. It is four hundred and eight
and three hundred and eighty feet hi
of the cross. The cupola is lofty, a
circumference, being the first of th
ever was built in Europe, and that fr
Peter's at Rome was copied. The
the inside of it represents the resurre
last judgment: and the body of the c
wise adorned with the finest painting
and stately monuments. The bell-tow
*detached from* the church, is much
*ing a hundred* and eighty feet high,

several colours, and adorned with a great
y of curious carvings and figures. The bap-
', which stands before the church, was an-
y a temple of Mars, and is now remarkable
three brazen gates, on which several pieces
iptural history are so exquisitely represented
s-relief, that Michael Angelo used to say,
ey were worthy of being the gates of Pa-
."—These gates were the work of Laurentio
and took him up fifty years in finishing.
p Burnet observes, they are the best of the
n the world, and adds, that the histories are
ented with so much exactness, and the work
beautiful, that a curious person might find en-
nment for many days, if he would examine
with critical attention.

e chapel of St. Laurence (adjoining to the
iate church of the same name) is the burial-
of the Medicean family, and is universally
ed to be one of the finest pieces of work in
orld. This chapel is built in an octagonal
having a spacious cupola for its roof, and
lls incrusted with jasper, agate, lapis la-
oriental alabaster, and other rich materials.
und it are the tombs of the great dukes of
ny, composed of porphyry, granite, and
ost precious marbles; and on each tomb is
mn of jasper, with a ducal crown on the
it, enriched with precious stones. Above
tombs the statues of the great dukes are
l in niches, all of gilded brass, and as large as
In the middle of each face of the octagon
double pilaster of jasper, and on the pe-
of each are several emblematical figures
*ly wrought with* precious stones. The
*nt is of the* finest marble, and the roof

naments, are also of incredible beauty and
The roofs, wainscots, and walls, are all c
with pieces of the finest marble, curiou
together; or with compartments of ex
joiner's work, adorned with carvings and
relievos, gilt, and enriched with the wo
the most celebrated artists. In short t
scarcely any thing to be seen but jasper, por
and other precious stones, done in mosaic
fashions, and all master-pieces in each kin

In a cloister belonging to the stately
tery of the Carthusians in this city, is
brated crucifix of Michael Angelo, dor
pretended, from a certain peasant, w
painter crucified for the purpose. It
upon wood, and is about half a foot high
convent of the Carmelites, in this city, i
a miraculous crucifix, which is sai
bowed the head, to avoid a cannon
against that monastery, by order of
prince of Arragon, when he besieg
which he was immediatel

turn are placed on the altar of the chapel, during
gh mass; at which time the blood in the vials,
efore congealed and dried up, begins to dissolve
d bubble, till it becomes quite liquid. The same
iracle is also performed every year, on the 29th
September, and 16th of December, on the high
tar of the cathedral. And if, at any time the
ood fails of dissolving, at its approach to the
ead, the Neapolitans consider that circumstance
predictive of some heavy judgment from heaven;
ut when it liquifies regularly, they regard it as
token of the divine favor; upon which occa-
on there are many rich offerings made at the
rine of this saint; and except the Holy-house
Loretto, it is observed, that there is not a relic
the world which has brought more riches than
is into the church: for the quantities of gold,
lver, and jewels, which have been offered at the
hrine of St. Januarius, are really wonderful.

That there is really such a change in the blood
ontained in these vessels is beyond all doubt,
nd this change is held in Naples for a super-
atural one. The vial is shook for some time,
nd after several shakings, the matter contained
n it appears to liquify. This miracle, which
as performed at the desire of the margra-
ine of Bareith, in 1755, and at which M. de la
Condamine was present, is thus related by that
entleman :—A vial was brought to the princess,
t in a circle of silver, gilt, and mounted on a
edestal, very richly ornamented, which was sur-
ounted again with a caduceus, in order to dis-
nguish the mounting of this from that of the
ial kept in the cathedral. All this apparatus
as *put into the* hands of the princess, from
*hat it passed into* the hands of her husband, the

...lizeth, of our author, and ...

... appeared to be half filled with ... or paste, and its sid... dust. On inclining it alternatel... shaking it for about half a ... became liquid, and melted, som... partially; and at other times it grev... and on shaking it anew, was e... a longer time in liquifying. M... had been an eye-witness of th... on several occasions, not ... highnesses the margra... afterwards more particul... of the machine, where he had ... to examining it. He observ... two small cones, with their ... other, which he was in ... with a small opening and h... was moveable in such a m... sometimes met with that ... at other times did not:— ...ntial, and just as the mot... vial caused the axis of t... As for the dust which he ... told that it was an amalg... tin, and bismuth; that a ... but very imperfectl...

nercury insinuated itself in a greater or less
ity, and liquified the amalgama; that some-
, by the variety of motions impressed on the
ine, the mercury so introduced, returned
by the same opening, and that then the
gama ceased to be fluid.

e churches of Genoa are likewise beautiful
nagnificent; the cathedral is a noble struc-
of black and white marble, intermixed, and
sting entirely of massive square stones. In
reasury belonging to this church, has been
rved with the greatest veneration, for up-
s of six hundred years, a dish, or hexa-
bowl, which is said to be made of eme-
and in which they pretend that our Sa-
eat the paschal supper. It has two small
les, and consists of one single piece; its
est diameter is about fourteen inches and a
its height, five inches nine lines; its thick-
three lines. This monument is kept under
al keys, deposited in different hands. When
shown, which happens but seldom, and by
e only of a decree of the senate, the vessel is
own by a cord, passed through its two han-
and suspended round the priest's neck who
des at the exhibition. By an ancient decree
e senate, bearing date the 24th of May, 1476,
orbidden, under severe penalties, to approach
ear this sacred vessel, and much more to
it with any metal whatever: but all this ap-
us and these difficulties seem only so many
ations taken against those who want to sa-
themselves by some proof, such as that of a
r graving tool, whether the matter of which
*sel is composed* be really of the hardness of
*ald.*

Nevertheless they produce an act, by wh
appears that the vessel was pledged by the d
ration of the senate, in 1319, during the sie
Genoa, for a sum equivalent to twelve hur
marks of gold, and that this sum was paid off
the pledge withdrawn twelve years after, v
seems to prove, that the great matter of the
of this deposit was, at that time, without
cion: but the circumstance of one of its ha
being cracked, is, perhaps, no presumption
vour of the matter of this vessel, nor ca
proof, which was supposed to have been m
presence of Charles V. ascertain the g
ness of the emerald.

M. de la Condamine having found an o
nity of examining it, viewed it attentive
posing it to the light of a large taper; th
appeared to him of a very deep green.
ceived not in it the least trace of thos
straws, clouds, and other defects of tran
so common in emeralds, and all other
stones of the least thickness; but he d
ed very evidently several little voids, r
small bubbles of air, of a round or ob
such as are commonly found in crysta
coloured.

f Sheba made a present of it to Solomon,
ime in which it was employed to serve up
:hal lamb to our Saviour, on the eve of his
: this is a point on which our author has
least doubt. As for what respects the
)f it, he maintains that it is certainly an
, and his strongest argument is, that the
)f a vessel which served for the supper
i our Lord instituted the august sacrament
ıcharist, could not be too precious.

cathedral church of St. Petrona, at Bo-
is a most superb structure, and is said to
a meridian, traced above a hundred and
ırs ago, by the illustrious astronomer Do-
Cassini. It is drawn on a copper-plate,
ıe pavement of the church, and is two hun-
d twenty feet in length. The rays of the
l upon it from a hole in the roof of one of
aisles of the church; it begins exactly un-
hole, and terminates at the bottom of the
ave. It has divisions engraved on it for
rees of the ecliptic, with the several signs
at their proper distances; the hole
which the sun-beams dart upon the line is
en inches square, and about ninety feet
ove the line.

church of Loretto is a very magnificent
built in the form of a cross, and adorned
profusion of statues and paintings by the
elebrated masters. The cupola is very
nd supported by twelve stately pillars;
e doors of the church are of Corinthian
nriched with some elegant bass-reliefs.

in the walls of this church stands the fa-
*ıa Casa, or Holy* House, which has long
*d a vast resort* of pilgrims from all parts

of Europe, and of which the following ac
given by the Roman-Catholics :—"This
(say they) was originally a small house in
reth, in which the blessed virgin receive
gel's salutation, and bred the Redeeme
World. After her death it was held in g
neration by the Christians, who at lengt
crated it as a chapel, and prevailed on S
to make the image which is now dignifi
the name of 'Our Lady of Loretto.' Thi
fied edifice was permitted to remain in
whilst that district was possessed by Ch
but when Palestine fell under the domini
fidels, a band of angels took it in their a
conveyed it to Dalmatia, whence it wa
wards carried, across the Adriatic, into t
tory of Recanati, and finally placed on t
nence where it now stands."

This house or apartment is about thi
feet long, and fourteen broad; and the w
pear to be of brick, cemented with comm
and sand; but the interior consists of the
marble, and is ornamented with basso-reli
the best sculptors which Italy could furnis
reign of Leo X. Prior to the late war, this
was the richest receptacle of the tribute o
stition in Europe; and its appearance wa
tremely brilliant, that Mr. Addison ob
"Silver could scarcely find admission, a
gold looked but indifferently among such
credible number of precious stones." The
of the Virgin and her divine infant were a
with mantles of gold brocade embroidere
precious stones, triple crowns of massy g
riched with diamonds of immense value, a
hurs of the same materials; round the neck

the statue was placed, a row of precious stones was curiously disposed, so as to form a kind of rainbow of different colours; twelve lamps of massy gold, each weighing thirty-seven pounds, were also suspended before the sacred images; the altar was of pure beaten silver; and the treasury, consisting of seventeen or eighteen large presses, was literally crowded with gold, coral, crystal, diamonds, and other offerings of princes, kings, and emperors. But when Loretto fell into the hands of the French, in the summer of 1796, these immense treasures were seized by general Bonaparte, and appropriated to the use of his army and the republic.

The spacious area before the great church, which encloses this building, is ornamented with a beautiful marble fountain, and a statue of pope Sixtus V. in bronze; and the altars, or little chapels, are embellished with some good sculpture: but nothing is so interesting to a traveller of sensibility as the iron grates before these chapels, which were made of the chains and fetters of those christian slaves who obtained their liberty by the glorious victory of Lepanto.

Having given this account of sacred edifices, we must now turn our attention to some of the most celebrated palaces and other buildings which are to be seen in Italy.

The palace of the Vatican, which is the usual winter-residence of the Pope, is in some respects the most celebrated in Europe. It stands near St. Peter's church, and is a very large and lofty building, but extremely irregular; or rather it may be reckoned *a heap* of good pieces of architecture *ill joined together*. Some persons affirm that it contains above twelve thousand rooms

n palace fit for the greatest monarch ;
the outside has nothing worthy of pa
miration, the inside makes ample ame
grandeur of the apartments and the b
paintings, wherein the greatest mast
have displayed their art, are truly asto
the great hall, or *Sala Regia*, is a
piece by the celebrated Raphael, r
Leo in his pontifical habit, meeting
of the Huns ; and Michael Angelo h
done himself in the Conversion of St.
same hand has inimitably drawn the
ment, in a chapel adjoining to this h
likewise admired for the beauty of i
The pleasure-house, called the Belvid
also with excellent paintings, and its
laid out in pleasant walks, and adorne
tains, cascades, grottos, &c. together
variety of antique statues, many of th
lent workmanship, particularly tha
coming out of a bath, a dying Cle
Laocoon with his two sons and serpe
about them, cut out of one block of m
the famous library, with the building
it, engages the attention of a strang
all the other beauties of the Vatican.
ture is finely painted both within and
the library itself is one of the noblest
the world, both of printed books and
especially the latter, having been mu
el by the library of the Elector Pa
Heidelberg, that of the duke of Urb
*of Christina*, queen of Sweden.
*Bible, the four* Gospels written by

t. Chrysostom, a Virgil, and a Terence, about ourteen hundred years old, may be seen among he ancient manuscripts; of which indeed there is surprising number in several languages.

The stately palace of Pitti, at Florence, is built the rustic manner, which, as well as the Tuscan der, owes its origin to this country. The front to- ards the street has a range of twenty-two large indows in each story, embellished with fine pillars nd other ornaments; but the court or area within so small, that one cannot stand in it conveniently view the building to advantage. The best front next the gardens, where the columns of the first tory are of the Doric order, those of the middle onic, and the third Corinthian. The grand partments are very richly furnished, and adorned ith exquisite paintings; but nothing in Florence so much admired as the famous gallery of the d palace, which is filled with a most curious col- ction of pictures and statues. One side of this allery is a continued window, under which are anged fine marble statues of the Roman em- erors and ancient heroes, and above it are por- aits of the most learned men of different ages nd countries. The opposite side is covered with ictures of the Medicean family, and those of the ost celebrated generals, ancient and modern. mongst the busts of the emperors are those of aligula, Otho, Pertinax, and several others, hich are almost singular in their kind; and any of those which are more common deserve articular notice for the excellence of the sculp- re, as those of Augustus, Vespasian, and Marcus urelius. Here is also an admirable bust of *lexander the Great* looking up to heaven, in hose countenance the sculptor seems to have ex-

pressed his concern for want of new
conquer. The entire figure of a vestal v
the sacred fire burning before her, is
piece of antiquity; as is also a Mo
touchstone, being the figure of a boy a
a bundle of poppies in his hand, in wh
that deity was usually represented
statuaries. There are likewise in thi
Narcissus, a Flora, a gladiator, and n
statues, equally valuable for their ant
excellent workmanship; and six or sev
ing rooms are filled with all mann
riosities. One of these contains a co
idols, sepulchral lamps, talismans*, m
other antiquities of a similar nature;
called the Mathematical Chamber, ha
and sphere, each of them seven feet in
and a third is covered with the finest
But the most valuable objects are kept in a
which is a little dome or cupola lined w
of pearl, and the floor is inlaid with ma
rious colours. Here are a cabinet full
of agate, cornelian, porphyry, rock-cr
and a large table inlaid with oriental jas
topazes and other precious stones.
likewise contains a great variety of sele
amongst which, that of Venus de Medi

* Talismans are figures of the heavenly
stellations, or planets, engraven on stone
which some astrologers ascribe wonderful vi
culiarly that of drawing down the influence
lestial bodies. There are also magical talism
bear very extraordinary figures, with superst
and names of angels. The ancient talisman
*amulets* were pieces of iron formed into i
*set in rings*, which were reckoned preserva
all evil.

very spectator, and is confessedly beyond description.

Here it may be proper to notice a country palace, called Pratolino, not so much on account of the structure itself, though very grand and beautiful, as to give the reader a specimen of the fine water-works of the Italians, which are no where seen in greater perfection than in the gardens of this villa. Here is a noble grotto, of which the roof alone is said to have cost thirty thousand ducats, being all of coral, mother of pearl, and other costly materials; the walls are lined with the same, and the pilasters are adorned with an organ, which by means of water plays several tunes*, whilst the god Pan joins his pipe to the music, and is answered by the warbling of a great variety of artificial birds. In the bason is a large dolphin carrying a woman on his back, and swimming about with several other figures, all moving as if alive. In another grotto Galatea passes from a door in a sea-chariot, and returns again the same way, after having sailed some time upon the water. In one place an angel blows a trumpet; in another a clown carries a dish of water to a serpent, who lifts up his head and drinks; white

* Hydraulic organs may be seen in several grottos in Italy, from whence they have been introduced into France and other countries. The invention, however, is not modern; for Ctesibus of Alexandria, who lived in the reign of Ptolemy Euergetes, is said to have first contrived organs that played by compressing the air with water. Archimedes and Vetruvius have also given descriptions of the hydraulic organ; and we find the figure of one on the reverse of a large medallion of Valentinian, with *two men*, one on the right, the other on the *left side, seeming to* pump the water which plays *and to listen to its sound.*

closets, &c. but on this subject we can
with accuracy. Suffice it therefore to say
a palace fit for the greatest monarch; a
the outside has nothing worthy of par
miration, the inside makes ample amen
grandeur of the apartments and the bea
paintings, wherein the greatest maste
have displayed their art, are truly astoni
the great hall, or *Sala Regia*, is an
piece by the celebrated Raphael, re
Leo in his pontifical habit, meeting A
of the Huns; and Michael Angelo has
done himself in the Conversion of St. P
same hand has inimitably drawn the J
ment, in a chapel adjoining to this hal
likewise admired for the beauty of its
The pleasure-house, called the Belvider
also with excellent paintings, and its g
laid out in pleasant walks, and adorned
tains, cascades, grottos, &c. together w
variety of antique statues, many of the
lent workmanship, particularly that
coming out of a bath, a dying Cleo
Laocoon with his two sons and serpen
about them, cut out of one block of ma
the famous library, with the building th
it, engages the attention of a stranger
all the other beauties of the Vatican.
ture is finely painted both within and wi
the library itself is one of the noblest co
the world, both of printed books and m
especially the latter, having been muc
ed by the library of the Elector Pala
Heidelberg, that of the duke of Urbin
*of Christina*, queen of Sweden. *
*Bible*, the four Gospels written by

ıry̆sostom, a Virgil, and a Terence, about
:en hundred years old, may be seen among
ıcient manuscripts; of which indeed there is
prising number in several languages.
e stately palace of Pitti, at Florence, is built
: rustic manner, which, as well as the Tuscan
, owes its origin to this country. The front to-
; the street has a range of twenty-two large
ows in each story, embellished with fine pillars
ther ornaments; but the court or area within
mall, that one cannot stand in it conveniently
:w the building to advantage. The best front
:t the gardens, where the columns of the first
are of the Doric order, those of the middle
, and the third Corinthian. The grand
ments are very richly furnished, and adorned
exquisite paintings; but nothing in Florence
much admired as the famous gallery of the
alace, which is filled with a most curious col-
n of pictures and statues. One side of this
ry is a continued window, under which are
id fine marble statues of the Roman em-
s and ancient heroes, and above it are por-
of the most learned men of different ages
:ountries. The opposite side is covered with
res of the Medicean family, and those of the
celebrated generals, ancient and modern.
ngst the busts of the emperors are those of
ula, Otho, Pertinax, and several others,
h are almost singular in their kind; and
of those which are more common deserve
cular notice for the excellence of the sculp-
as those of Augustus, Vespasian, and Marcus
lius. Here is also an admirable bust of
*ander the Great* looking up to heaven, in
*countenance* the sculptor seems to have ex-

fice, which is rendered equally curious and ri
lous by its noble owner, who seems to have
voted his whole attention to the study of mon
and chimeras, more absurd than ever entered
the imagination of the wildest writers of rom
or knight errantry.

The amazing crowd of statues, (says Mr.
done) that surround this house, appear, at a
tance, like a little army drawn up for its defe
but on approaching, the whole appears like th
gions of enchantment, for of all the imm
groupe, there is not a single representation of
object in nature: nor is the absurdity of
imagination that created them less astonis
than its fertility. The heads of men are af
to the bodies of every sort of animal, and
heads of every other animal to the bodie
men. Sometimes five or six animals that
no resemblance in nature are compounded;
head of a lion being joined to the neck
goose, the body of a lizard, the legs of a
and the tail of a fox. On the back of
monster is another still more hideous, with
or six heads, and an enormous bush of horns.
deed there is no kind of horn that has not
collected; and it is the chief pleasure of the
prietor to see them all flourishing on the
head.

The statues that adorn, or rather deform, the
avenue, and the court of this palace amount
hundred; but of the whole number there ren
not the likeness of any thing in heaven abov
the earth beneath, or in the waters under
earth. The old ornaments appear to have
*in a good taste; but* these have all been kn
*to pieces, and laid* together in a heap to

the new creation of the present eccen-
er.

ide of this enchanted castle corresponds
ith the exterior; being in every respect
cal and fantastical. Some of the apart-
e spacious and magnificent, with lofty
ofs, which instead of stucco or plaster,
ly composed of large mirrors, curiously
gether, and producing an effect like
nultiplying glass; so that when three or
ns are walking below, there is an ap-
of as many hundreds walking above.
s, also are covered with small pieces of
it into the most ridiculous shapes and
d with a variety of crystal and glass of
colours. The windows are composed of
glass of every colour in the rainbow, but
ither order or regularity; the chimney-
id side-boards are crowded with pillars
nids of tea-pots, cups and saucers, bowls,
lle cups, strongly cemented together;
i the house clock is cased in a sta-
eyes of which moving with the pendu-
alternately turning up their white and
ike a most hideous appearance.
rand bed-chamber and dressing-room
most every animal and reptile on earth,
arble and coloured after nature. Here
several busts which make a handsome
i one side, and represent a skeleton on
The family statues, which are really fine,
i decked out in whimsical suits of marble,
ice a laughable effect, the shoes are all of
rble, the stockings generally of red, and
s of different colours, with a rich old
lace.

The author and owner of this heterog... collection is represented as a lean miserable fi... gure, shivering at a leaf and seemingly afraid to speak to any one; yet, notwithstanding the in... sanity of his actions, he is perfectly innocent. Being likewise immensely rich, and expending such prodigious sums on the creation of monster which give bread to numbers of indigent artist... government has forborne interfering, though h... hideous statues have sometimes been productiv... of very serious consequences, and many lad... complain that they dare no longer take an air... in the Bagaria.

We shall conclude this article with a brief ... cription of the famous bridge at Venice called ... Rialto, which is universally allowed to be on... the finest in Europe. It was built in the ... 1591, from a design of the celebrated Michae... gelo, and is said to have cost 250,000 ducat... consists of a single arch, all of marble, has ... each side, and two rows of shops in the ... The dimensions of this bridge are as follo... compass of the arch is exactly one thi... of a circle; its width on the level of the wat... one extremity to the other, is ninety-five f... its height twenty-four.

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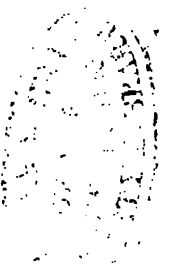
ARTS, MANUFACTURES, DISCOVER... FISHERIES.

OF the various manufactures of I... *silk may be* reckoned the principal ... *ploys a* vast number of hands in G...

Vol. II. p. 92.



[redacted] its
[redacted] have [redacted] sent
[redacted] the late wars, in which the coun-
has been unhappily engaged, has been a great
rruption to her commerce and manufactures.
The artificers of Milan, besides their wrought
s, are famous for hard wares, and crystal,
which they sometimes make looking-glasses
hteen inches long, that are greatly admired.
scia seems to resemble the English town of
mingham, being the most noted town in Italy
its manufactures of iron and steel, especially
-arms. They also make abundance of swords,
ves, and all sorts of cutlery-ware; and their
nufacture of linen-cloth is very considerable.
The duchy of Parma was formerly famous for
fine cheese, called Parmesan, but it is now out-
ne by the territory of Lodi, where they breed great
mbers of cattle, and make excellent cheeses
a monstrous size, some of them being as large
a mill-stone, and weighing above five hundred
unds. The Lodesan is also noted for a fine sort
earthen ware, not inferior to that of Delft in
lland.
The Venetians for a long time excelled all Eu-
e in the glass manufacture, and were particular-
famed for making the best looking-glasses in the
rld; but the English and French have now
ried that art to much greater perfection. Their
lebrated glass-houses, whence Europe used to be
pplied, are at a little town called Murano, on
island about a mile from Venice; and though
demand for this brittle commodity is not

near so great as formerly, they ar
posed to vend annually as much as
two hundred thousand crowns. It r
knowledged that they are very dextro
ing the glass into all manner of for
ships with their guns and rigging, c
their cannon mounted, draw-bridges,
and little organs that will make tolerab
As the method of casting plate or lo
which is practised by the English and
been described in a former chapter
now give the reader a short account
ner of blowing round glass, under wh
comprehended drinking-glasses, bott
and other vessels.

When the matter contained in th
pots is sufficiently vitrified, the oper
blowing-iron, (which is a hollow tub
feet and half long,) dips it into the po
it round; by which means the metal
the iron, like a glutinous or clammy
each glass or vessel he dips four tir
each dip rolls the end of his instru
piece of iron placed over a vessel of
coolness of which consolidates the gla
poses it to bind the better with the n
out by the next dip of the instrumen
taken up enough by these dippings, th
begins to blow gently through the iron
he raises or lengthens it much like the
a bladder; and to give it a polish, he
a smooth stone or marble. He then
cool time, and forms the belly of the
matter assuming the figure of a gourd
*eighteen inches* in diameter. This bl
*peated as often* as the operator think

in order to lengthen and cool the glass, he quently whirls the iron round his head. When vessel is blown into this form, it is sometimes rned to the fire, where it flattens a little of lf; after which it is taken out and cooled, and be design require it, the workman flattens its om, by pressing it on the marble, or moulds it the stamp irons. To disengage the vessel from instrument, he drops some cold water on the k, which is the narrow part that cleaves to the ; and this making a small crack, the fracture a slight blow is communicated quite round the et. This done, he dips an iron rod in the melt- pot, and with the matter that sticks to it he lies and fastens it to the bottom of the vessel, ich is carried to the great bocca or aperture the furnace to be heated, where it is left to the e of another person, whilst the former pre- es himself for the branching. To branch or ke the bowl, they thrust in an iron instrument, l the aperture is widened by a second, which urned about to give the vessel its proper form. hat is superfluous is cut off with shears; and en the vessel is thus opened, it is carried again the great bocca, where being sufficiently ted a second time, the workman puts a finish- hand to the bowl by turning it with a circular tion, which he increases as it opens and en- ges. Nothing then remains but to place it in leer-furnace to anneal and harden.

From this description the reader may form some n of the manner of blowing glass vessels of dif- ent kinds, but the dexterity and expedition th which the work is performed can only be ceived *by seeing* the operation. It is really *prising to observe*, how the melted matter obeys

he blast of the artist; how it [illegible]
orms itself into a bottle, bowl, cup, [illegible]
sel; how the workman turns and twists it, [illegible]
it round as a ball, or flat as a wafer; how he cu
it with scissars like a piece of cloth; and in sho
fashions it into a thousand pretty fancies, or in
convenient vases for preserving liquor, for whi
purpose it serves better than the most precio
metals.—The various uses for glass are almost i
numerable, but one of the most common, a
perhaps the most serviceable of all, is that
making windows. Instead of splitting stone in
thin laminæ or plates, in order to render it tran
parent, as was the practice of the ancients; i
stead of using canvas or linen, which intercep
the view and hinders the free transmission of t
light; or instead of making lattices, which mu
leave us exposed to the cold, wind, and rain; ho
much more convenient is it to have windows
glass, which, though sufficiently dense and co
pact to defend us against the inclemency of t
weather, are so pellucid, as to transmit to us in t
middle of our houses the chearful blaze of da
without any diminution of its lustre, and to
open to our sight the whole prospect of nature

We read of a very singular and curious ma
facture of Sea Wool or Fish Wool, carried o
Reggio in Calabria, and also at Palermo
other towns in Sicily. On those coasts they
a large kind of muscle, whose shell (acco
to Martiniere) is covered with hair,
being soaked and washed in fresh water, is
ed, spun, and knit into stockings, caps, g
waistcoats, and other sorts of apparel;
*though lighter* than silk or cotton, are consid
*warmer*. But we rather apprehend fro

ls, that the shell of this fish is not hairy,
t the animal shoots out a great many fine
; or strings from its tongue, whereby it
itself to the rocks or sand, and of these
the Sicilians form stuffs of incomparable

: is one part of our design to notice the most
able discoveries made by the inhabitants
erent countries, it seems proper before we
le this chapter to give a short account of the
ery of America by the famous Christopher
bus, a native of the state of Genoa; and
celebrated astronomer Galilio.
mbus, who was well skilled in astronomy,
phy, and navigation, had long formed a re-
n of sailing in search of a country beyond
lantic ocean, and had made application to
l European states and princes, particularly
VII. of England to grant him ships and mo-
proceed on his intended voyage. After many
itions, Ferdinand and Isabella of Spain pro-
him with money to fit out three small ships
: expedition. This little squadron, manned
vith ninety men, set sail from Palos in An-
, on the 3d of August, 1492, arrived at
anaries on the 12th, and left those islands
: 1st of September, directing their course to
estward. But they had not sailed above a
ht in this wide ocean before the men began
mur; for observing the wind to set con-
from east to west, they apprehended
would be no possibility of returning, and
re concluded they must inevitably perish
y missed the land they were made to ex-
*Their fears*, however, were in some measure
*ed on the 19th*, when they observed a

flight of birds, and saw abundance of we
driving by their vessels. Having continued
course westward for some time longer, and m
ing with no land, they again became mutinous,
even threatened to throw their admiral o
board; but happily for Columbus, they w
once more pacified by seeing birds, weeds,
even a shrub with berries upon it swim by th
which gave them fresh hopes the land was
no great distance. On the 11th of Octo
about ten o'clock at night, the admiral first
covered a light upon the island of Guanahani
St. Salvador, which last name he gave it, in co
deration that the sight of it delivered him and
men from their fears of perishing. Next morn
the ships anchored near the island, which the
tives beheld with the greatest astonishment, w
the admiral went ashore in his boat, and took
session of the country in the name of their Ca
lic majesties. The poor people were extrem
pleased with the beads and other toys the Sp
ards distributed amongst them, and followed
lumbus and his people wherever they went, se
ing to adore them, as if they were come f
heaven. From this island they sailed to Cuba
Hispaniola, whence they departed for Eur
and arrived at Palos on the 13th of March, 1
where a solemn procession and thanksgi
were made for their return, and the admiral
received by their Catholic majesties with
served respect. Columbus afterwards made t
voyages to this new world, which however
not taken its name from him, but from Ameri
Vespusio, a Florentine, who was sent in
*Emanuel king* of Portugal, to continue
*discoveries.*

But though the honour of the first discovery of
erica ought undoubtedly to be given to Co-
bus, we must allow a proper share to the seve-
succeeding adventurers, and amongst the rest
John Cabot, who was employed by Henry the
th of England, and in the year 1497 discovered
wfoundland, and sailed along the coast of
erica, as far as the cape of Florida. And
ce it appears, that whatever right the Spani-
s may pretend to that part of the new world,
English have a right equal if not superior to
rs.

Galilio, one of the most celebrated mathema-
ans, and greatest geniuses of the seventeenth
tury, was the natural son of Vinzenzo Gali-
a nobleman of Florence. In his youth, he
an extreme fondnesss for the study of phi-
phy and the mathematics; and made an extra-
inary progress in the sciences; whence, in
2, he was chosen professor of mathematics in
university of Padua; he soon afterward wrote
eatise of mechanics, and showed the manner
finding the alloy of mixed metals, by means of
height of a statical balance. While he was
fessor at Padua, it is said, that having heard of
e glasses invented by James Mebius in Hol-
l, by means of which distant objects appeared
e brought near, he reflected with such appli-
on on their nature, that without ever having
n any of them, he invented the telescope.
h this instrument he first discovered the four
llites of Jupiter, and made observations on
heavens, that have rendered his name immor-

In 1611, Cosmo, II. grand duke of Tus-
, made *him professor* of mathematics at Pisa;
*soon after,* inviting him to Florence, gave

him the title of his first philosopher and mathematician. In 1612, having observed some spots in the sun, he printed an account of that discovery at Rome; in which, and in some other pieces, he ventured to assert the truth of the Copernican system, and brought several new arguments to confirm it. Upon this he was cited to appear before the inquisition where he was charged with heresy for maintaining that the sun was the centre of our system, and that the earth turns round on its own axis by a diurnal motion; both which propositions were declared contrary to the word of God; and having been detained at Rome for upwards of a year, Cardinal Bellarmine made him promise not to defend this system, either by word or writing. Galilio however did not keep this extorted promise, but went on making new discoveries in the heavens; and sixteen years after, published his dialogue on the systems of Ptolemy and Copernicus, in which he undertook to prove, the sun was really immoveable; and that the earth turned round it. For this work Galilio was again cited before the inquisition at Rome, where, in 1633, he was obliged by a decree, to abjure his system, as erroneous and heretical; and was condemned to remain in prison, as long as the Cardinal inquisitors should think fit; and his printed books were publicly burnt. After some time his enemies sent him into the dominions of the duke of Tuscany, where he was confined to the town and territory of Arcetri. He was the author of several noble inventions and discoveries, besides those already mentioned, particularly in astronomy, he discovered the trepidation or vibration of the moon; as also the inequalities on its surface. By the frequent eclipses of Jupiter's satel-

ites, which he called the Medicean stars, he had noughts of finding out the longitude, and com-osed his tables with their motions; in geometry e nivented the Sycloid or Trochoid, and in me-hanics he first found out the exact degree of elerity in the descent of bodies, by the force of ravitation. He had likewise a taste for architec-ure and painting, and performed on some musical nstruments. He became blind two years before is death, which happened at Florence in 1642, when he was seventy-eight years of age. Many f his works have been unhappily lost, by the olly of his wife, who was persuaded by her con-essor to deliver them to him, in order to be burnt.

The fisheries of Sicily are very interesting. Catching the tunny fish constitutes one of the principal amusements during the summer months, and the curing and sending them to foreign mar-kets forms one of the greatest branches of Sicilian commerce.

Towards the latter end of May, when these fish begin to make their appearance, the Sicilians prepare the tonnaros for their reception. This is a kind of aquatic castle, composed of strong nets, and fastened to the bottom of the sea, by anchors and leaden weights; a narrow passage is left open, which however is drawn together as soon as the tunnies have entered the inclosure. Some tonnaros consist of several apartments, which are successively closed till the fish are at length forced to the chamber of death, where their existence is terminated by spears, harpoons, &c.

The taking of the sword-fish is a more noble diversion; for no art is used to ensnare them;

a small harpoon fixed to a line, they
ked in the open sea. The Sicilian fisher-
epeat a Greek sentence by way of a
to lure their prey near them, and they are
titious enough to suppose that this absurd
ce is really conducive to their success. As
fish are remarkably large and strong, they
times run for hours after they are struck, and
equently afford excellent sport. The flesh is
to resemble beef rather than fish, and is gene-
y dressed in steaks.

The fishing of the pesce-spada is very consi
rable in the sea of Messina, where are likewis
eat quantities of eels particularly the moren
hich was universally celebrated among the R
nans. Even mackarel are here caught with
harpoon. As soon as it is dark, two men get i
a boat, one of them holding a lighted torch c
the surface of the water, and the other a harp
with which he pierces the fish as they ris
ward the light.

The coral fishery, at Trepani, is perform
means of an engine, composed of a large cr
wood, to the centre of which is fixed a
stone, capable of sinking the frame to the b
and pieces of small net-work are fastened
limb of the cross, which is poised horizont
rope, and let down into the water. As s
ches the bottom, the rope is fastened
dragged over the beds of coral, ma
which, being broken off by the gr
immediately entangled in the net.
ption of this simple invention the
ry has become extremely lucrative.

# CHAP. V.

## GERMANY, INCLUDING HUNGARY AND BOHEMIA.

### *Springs, Cataracts, Lakes, and Caverns.*

WE are now entering a country which abounds th mineral waters of various qualities; but of the springs of this kind none seem to have ined a greater reputation than those of Spa, in e bishoprick of Liege, which are not only re- rted to by people from most parts of Europe, t great quantities of the water, sealed up in ttles, are sent into other countries, especially olland and England. There are five springs in e town and its neighbourhood, which are more equented than the rest, but the waters of the uhon spring in the market-place, are most teemed, being preferred by our greatest phy- ians to all the mineral waters in or near the shoprick. They promote digestion, strengthen e tone of the viscera, and are efficacious in se- ral chronical diseases. The Capuchins have a e monastery at Spa, and large gardens, which e much resorted to, during the months of June, ly, and August.

The celebrated springs of Pyrmont are much the same nature with those of Spa, and are en preferable in many cases; but neither these any *other mineral* waters should be indis- *ntly used without* consulting a physician. At

per season many of the nobility o... as well as others, drink these wate are also exported, being first carried lace, in large quantities, from Bremen, iver Weser.

appears, from the Philosophical Transactio in calm dry weather, and a clear sky, th es from the Pyrmont springs a sulphure am, which suffocates birds that approach d ducks, that swim in a large spring, c only used for bathing, can scarcely respire a oments in this steam, but die immediately.

As the waters of Spa and Pyrmont are in greatest repute for drinking, so those of Ai Chapelle are the most noted for bathing of an Germany. The principal baths in the old t are the Emperor's Bath, the Little Bath, and of St. Quirinus, in the first of which the emp Charlemagne used to bathe with his sons nobles, being then all in one, whereas it is divided into several apartments. The sp that fill these baths rise so hot, that it is nec to let them cool ten or twelve hours befor are used: and being impregnated with nit sulphur, they are at first unpleasant to th and of a disagreeable smell. Those in town, which are the Rose Bath, the Poo and St. Corneille's, are neither so hot as the former, but with respect to their taste there is not much difference. Ne springs lie several cold ones, and th moderately warm, much resorted to i and drank for chronical diseases, sc dice, and dropsy. They are also exce *stubborn fevers*, agues, inveterate ch *mas, cutaneous* diseases, &c. In a

e are several other hot baths, the water of ıich is clear, pleasant, and free from any dis-reeable smell; and here people of all ages and ıditions bathe freely, not only for health, but diversion. The springs of this village and ɔse of the city are so plentiful, that it is com-ted they yield every day six thousand tuns of ıter. The first season for these baths begins in ay, the second in August.

The hot springs of Baden in Swabia, which oceed from rocks of salt, alum, and brimstone, e reckoned an infallible remedy for the cramp, ut, and other nervous distempers, and are con-quently much frequented. Some of them are markably hot, particularly one called the Kettle, e water of which boils and smokes as if it were ver a furnace. There is another town of the same ame in Austria, whose hot waters are resorted to veral months in the year for bathing; and the erman physicians recommend them, as highly eneficial in the gout, dropsy, and other chronical iseases.

In the Philosophical Transactions is an account f a curious spring near Paderborn, in Westpha-a, which loses itself twice in twenty-four hours, ut returns with a great noise, and with such orce, that its stream turns three mills a little be-ow; for which reason it is called the Bolder born, or Boisterous Spring. Another remarkable pring near the same city, sends forth three treams at a little distance from each other; one f which is blueish, luke-warm, and impregnated with vitriol, alum, sulphur, and other minerals; he second with much the same taste, but turbid, whitish, and cold as ice; and the third tastin[illegible] sour and sweet, but very clear, and of [illegible]ish colour.

The Danube, the most consid
Europe, takes its rise in the Black
many, from whence to its fall into
it performs a course of above one
hundred miles, at a moderate comp
out including its windings and tur
also several remarkable cataracts,
markable of which are the Saw Rus
Snout, near Lintz, so called from
rock which overhangs a dangerous v
another called Der Strudel, where
the water makes a dreadful noise.

None of the natural curiosities o
however, are more surprising than
sea or lake in Carniola, so called fr
bouring town of Circnitz. This l
five miles in length, and about tw
surrounded, at some distance, wi
which are richly clothed with wood
with deer, wild boars, hares, and
It is said, that in this lake a person
reap, hunt and fish, within the spa
but this is the least remarkable circ
longing to it, and is no more than
almost any other spot that is overflo
seasons. The most wonderful circ
ebbing and flowing. The former a
in a long drought, when it runs off
teen holes at the bottom, which
eddies or whirlpools. Valvasor m
gular method of fishing in one of th
says, that when the water is entirel
its subterraneous reservoirs, the pe
ith lights into that cavity, which
, *three* or *four* fathoms under
*bottom*; whence the water r

nall holes, as through a sieve, the fishes are ft behind, caught, as it were, in a net provided y nature.

On the first appearance of its ebbing, a bell is ng at Cirknitz, upon which all the peasants in e neighbouring villages, with the utmost dili- ence, prepare for fishing; for the fish seldom ay till the water is considerably decreased.— bove a hundred peasants exert themselves on is occasion, and both men and women pro- iscuously run into the lake without any cover- g, though both the magistrates and clergy have sed their endeavours to suppress this indecent ustom, particularly on account of the young lay rothers of a neighbouring convent who have he privilege of fishing there; and notwithstand- ing the prohibitions of the fathers, leave the convent to see this uncommon spectacle. At these ebbings, an incredible number of pikes, trout, tench, eels, carp, perch, &c. are caught in the lake; and what are not consumed, or disposed of while fresh, are dried by the fire.

Though the whole lake is left dry, except two or three pools, yet, upon the return of the water, it abounds in fish as much as it did before; and the fishes that return with the water are of a very large size. It is also remarkable that when it be- gins to rain hard, three of the cavities spout up water to the height of twelve or eighteen feet, and if the rain continue, and be accompanied with violent thunder, the water bubbles out of the holes through which it had been absorbed, and the whole lake is again filled in twenty four, nd often in eighteen hours. Sometimes not *ly fish, but live* ducks, with grass and fish in their *stomachs, have* emerged from these cavities.

In a rock on one side of the lake, l
ably higher than its surface, are two
some distance from each other; and v
ders the water gushes out of both,
noise and impetuosity; if this happen
they also eject a great many ducks
blind, but very fat, and of a black
though they are at first almost bare of
a fortnight's time, or at farthest bef
of October, they are entirely fledg
their sight, and fly away. Each of th
is six feet high and as many broad; a
water gushes out of them, it is in a l
of the same dimensions and in a conti
There is a large passage in each of
where a man may walk upright for a
way; but it is said that no person h
ventured into them, to search into th
the inner caves and reservoir to which
tures lead; for there is no certainty,
might be instantaneously surprised b
rushing upon him with irresistible fo
pidity. If the lake ebb early in the
twenty days time grass grows upon
mowed down, and the bottom after
with millet; but if the water does
early, nothing can be sown; and if
turns, as it sometimes does, the seed i
wise after the millet harvest, game
hunted and shot in it. M. Valvasor
this wonderful phænomenon by sup
there is, under the bottom of the la
subterraneous one, with which it has
communication by the several holes above-ment

*Under* a neighbouring mountain, c
*nick, is another* lake, whose surfa

hat of the lake of Cirknitz, and which ably fed by some subterraneous rivulets, are common in that country. When per lake is swelled by violent or sudden it finds several caverns in the mountain than its usual surface, through which it nto the lake under that of Cirknitz, whence through the holes in the bottom.

baths of Buda, in Hungary, according to travellers, may be justly reckoned among iest in Europe, both with respect to the sness of the springs, and the magnificence buildings. Some of the waters are equally for bathing and drinking; but others are so iely hot that they cannot possibly be used it setting them to cool in other baths, or them with cold water. Here are a hot ld bath so near each other that a man may, same time, put one hand into each. It is serted that some basons of hot water in this ourhood contain fish, which invariably die, eing thrown into the Danube, or any other ream.

the acclivity of a rocky mountain near Adg in Carniola, is a large cavern divided great number of subterraneous passages; a spectator is delighted with viewing a ide of sparry icicles, formed on the arched f the exudations of a lapideous or petrifying which form the most beautiful decorations. les are also covered with numerous figures, ed by the same exudations, to which imagihas sometimes given the forms of dragons, tygers, and other animals. Several sparry re *to be seen* on each side, which unite with *les at the top,* by meeting them about half

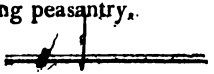
way, and thus a complete colonnade is
It is said that a person may walk about t
man miles in the subterraneous passage
cavern.

At the distance of about two miles fro
berg, is a still more remarkable cavern
St. Magdalen's cave. The way to it is e
troublesome, from its being covered wi
and bushes; but the fatigue of the road
over-paid by the splendor of the scene.
descent is into a kind of hole before the
which resembles a fissure in a huge rock
by an earthquake. Here torches are
lighted to conduct travellers, the cave b
tremely dark. This wonderful cavern s
vided into several large halls and oth
ments. The vast number of natural
which it is ornamented, give it a very s
pearance; for they are as white as s
possess a transparent lustre, which is
enchanting. The bottom consists of
materials; so that a contemplative spect
easily suppose himself to be walking a
ruins of some magnificent palace, wh
trate columns, broken ornaments, and
damps, tell the sad tale of the ravages
and man's mortality. A profusion o
icicles, suspended from the roof, seer
semble an elegant assemblage of wax t
extraordinary whiteness; but the ineq
the ground make the spectator liable to
whilst his delighted eyes rove over the i
beauties which surround him.

Near Blackenburg, in Harty Forest
*said to be* a cave of which no person
*covered the end*, though some have h

to venture through its recesses to a distance
venty miles. But the most singular curiosity
is kind is in the vicinity of Hamelen, where,
e mouth of a cavern, stands a monument,
nemorative of the loss of a hundred and
children, who were there swallowed up in
ear 1284.

ne of the most remarkable natural curiosities in
gary is a cavern in a mountain near Szelitze.
aperture of this cave, which fronts the south,
irly a hundred and eight feet high, and forty-
broad; and the interior is said to be three
red feet in height, and two hundred and six-
in breadth. The subterraneous passages con-
entirely of solid rock, and many wonderful
culars respecting this cavern are related by
eighbouring peasantry.



## MINERALS, FOSSILS, &c.

the neighbourhood of Friedberg, in Saxony,
are mines of several sorts of metal, and
cularly some of silver, which yield such pro-
us quantities that the profit arising from
is said to amount to one hundred and thirty
and pounds per annum. The largest of these
s is above twelve hundred feet deep, and
formerly so extremely rich that a hundred
ht of ore produced sixty pounds of silver,
ven now a pound of ore will generally yield
nce and a half. These mines are very sub-
to damps, which frequently impairs the
, and sometimes terminates the lives, of the
men, as the dust is very apt to settle on

their lungs, and throw them into a consumpti
The ill effects of this annoyance, however,
sometimes happily eluded by the use of vizar
with glass eyes, which enable the workmen
pursue their avocation, and at the same time p
vent them, in a great measure, from swallow
that unwholesome dust with which they are c
stantly surrounded.

Near Hallein, in the archbishoprick of Sal
burg, is a high mountain, the earth whereo
mixed with a sort of alum or salt-petre, wh
being laid for three or four weeks in large trenc
filled with fresh water, the earthy part subsid
and the water is then drawn off and boiled
iron pans, till it is quite evaporated and lea
the salt at the bottom. This mountain is pier
in a thousand places, so that guides are absolut
necessary to conduct strangers who have the
riosity to visit the subterraneous labyrinth, wh
is seldom done without much ceremony. Be
they enter these works, they generally repair t
church upon the mountain, to perform their de
tions, after which they breakfast at an adjac
public house, and being furnished with pro
dresses and other necessaries, every one tak
lighted candle or torch in his hand, and some
the guides go before and others behind, lest
strangers should be frightened or lose their wa
the dismal caverns. The inspection of this p
commonly takes up several hours.

Between Saltzburg and Uncken, which
about sixteen English miles distant, are the B
rian salt-works, at Reichenhall, where the
spring is called God's Goodness. The wate
raised by two large wheels, on the edges of wh

tened small leathern buckets that throw the
up to a place, whence half of it is con-
in leaden pipes over high mountains, as
Traunstein; where, (though it is three Ger-
miles distant from the spring), more salt is
than at Reichenhall. Near this salt spring
eam of fresh water, by the swift current of
, the wheels and water engines are worked.
se springs are encompassed with hills, and
ace, by laying in a valley, was supposed in
r of being overflowed, an aqueduct was made
odigious expence, about three hundred years
This channel is, indeed, an amazing work,
g half a league in length under the town
ichenhall, and several gardens and fields
fathoms below the surface. But the most
s circumstance is, that this subterraneous
el is navigable, and people pass through it
oat by the help of candles, with such rapi-
hat they get into open day light in a quarter
hour. The water is generally between three
our feet deep; but it is often so swelled by
ins, as not to leave room for the boat with
ssengers sitting upright. The canal is five
road, and every eight or ten years the bot-
cleared of the stones carried thither by the
, or wantonly thrown down the spiracles or
ngs, which are raised up in the form of
s, and are open on the top to admit the
air. The roof is not only formed of free-
but in many places covered with a very
kind of rosin, as with a varnish, so that it
as if it were one entire solid piece. The
at to this subterraneous canal, is by the steps
ower near the spring.

*he mines of* Saxony there is found a kind of

sulphur ore or pyrites, which being broke
small pieces, and thrown into earthern v
placed in proper furnaces, the sulphur cont
in the ore is melted by the fire, and run
through a narrow hole into leaden vessels
with water, where it concretes immediatel
the substance which remains behind cont
considerable quantity of vitriol. The sulp
purified by melting it a second time in iron ve
and boiling it, with the addition of some li
oil; after which it is either made up in large l
or poured into cylindrical moulds, and so fo
into rolls. Thus prepared it is called brim
and vast quantities of this kind of sulphu
annually made in Saxony, and transported i
parts of Europe. Sulphur Vivum, or Nativ
phur, is likewise found in the mines of Ger
sometimes in transparent pieces of a bea
yellow colour; but the coarse, opake, gr
kind is most common, being usually found
masses of various sizes, and sometimes in
strata of a considerable thickness. Sulphur i
found in the form of a fine yellow powde
hering to the stones and wood about the ba
Aix-la-Chapelle, and other sulphureous spr
in which state it greatly resembles the cor
flour of brimstone.

Native Vitriol is a kind of fossil salt no
common in the German mines; and partic
in those of Goslar in Saxony there is a fine
vitriol, very bright and transparent, found i
cliffs of the rocks in great abundance. In
mines is also a white vitriol, sometimes
in pieces of a compact substance, but most
*only in form* of a downy efflorescence o
*ps and sides* of the caverns, which, beiw

solved in water, is afterwards boiled till it concretes into a white mass, like sugar, and is then formed into those large cakes in which form we receive it from abroad. There is another vitriol of a blueish green, which is sometimes found in the mines of Saxony, but more frequently in those of Transylvania. This vitriol owes its origin to iron or copper, dissolved by the acid of sulphur and water, and again concreted into the forms wherein it is found. The green colour is derived from iron, the blue from copper, and the white and red proceed from a mixture of some other substances. As to factitious vitriols, they are obtained by various methods from vitriolic waters, earths, and stones, and especially from the pyrites. At Friedberg in Saxony, they burn the stony ore from which the sulphur has been separated, and putting it into a large vessel, pour water upon it, which imbibes the vitriol it contains, and being afterwards boiled to a certain consistence, is let out into coolers, where the purest part of the vitriol adheres to sticks placed there on purpose, and the rest to the sides and bottom.

The mines of quicksilver, near Idra in Carniola, are, perhaps, the richest of their kind in Europe; and were first discovered in the year 1497, in the following singular manner. A cooper having one evening placed a new tub under a dropping spring, in order to try if it would hold water, when he came in the morning found it so heavy, that he could hardly move it. At first the superstitious notions, that are apt to possess the minds of the ignorant, made him suspect that his tub was bewitched; but at last perceiving a shining fluid at the bottom, he went to Laubatch, and showed it to an apothecary, who immediatel

dismissed him with a small gratuity, and bi
bring some more of the same stuff, whenev
could meet with it. This the poor cooper
quently did, being highly pleased with his
fortune, till, at length, the affair being
public, several persons formed themselves i
society, in order to search farther into the c
silver mine. In their possession it continued
Charles duke of Austria perceiving the grea
portance of such a work, gave them a su
money, as a compensation for the expences
had been at, and took it into his own hands.

The subterraneous passages of this mine a
extensive, that it would take up several hou
go through them. The greatest perpend
height, computing from the entrance of the
is eight hundred and forty feet; but as the
vance horizontally under a high mountain
depth would be much greater, if it were
sured from the surface of the hill. One w
descending down the shafts is by a bucket;
the entrance is narrow, the bucket is liab
strike against the sides, or to be stopped
way, so that it may be easily overset. The
way of going down is that of descending
great number of ladders, placed obliquely;
the ladders are wet and narrow, a person
step very cautiously to prevent himself fro
ing. In some of the subterranean passage
heat is so intense, as to throw a man into a p
perspiration; and formerly, in some of the
the air was so extremely confined, that s
miners were suffocated by a kind of igneo
pour; but by sinking the main shaft deepe
progress of this mischief has been happily
vented. Near the main shaft is a large

and an hydraulic machine to raise the water from the bottom of the mine.

Virgin Mercury is prepared by nature, and is found in some of the ores of this mine, in a multitude of little drops of pure quicksilver: it is also to be met with in a kind of clay, and sometimes flows down the passages or fissures of the mine in a small continued stream, so that a man has frequently gathered in six hours thirty-six pounds of Virgin mercury, which bears a higher price than common quicksilver. The rest is extracted from cinnabar, or ore of quicksilver, which is pounded, washed, and distilled in large iron retorts, whence the mercury comes over pure into a receiver. Eight hundred retorts are employed at one time in the furnaces belonging to this mine; and we may judge of the vast quantities of quicksilver procured from them by the remarks of an intelligent traveller who tells us, that he saw in the castle above four hundred and seventy tons of it in barrels, and in another place, as much ore as would take up two years to distil.

Many of the miners are afflicted with a nervous disorder, accompanied with violent tremblings, convulsive motions of the hands and legs, and frightful distortions of the face. These disorders may be chiefly attributed to the virgin mercury, which in a surprising manner insinuates itself into the bodies of the miners, so that when they go into a warm bath, or are put into a profuse sweat by steam, drops of pure mercury have been actually known to issue through their pores. These mines are sometimes infested with rats and mice, which feed on the crumbs of bread, &c. dropped by the miners at their *meals*; but these animals soon fall [illegible] *to the same* convulsive disorders which *the workmen.*

The mines of Bohemia and Silesia yield consi
derable quantities of gold and silver, as well as o
the baser metals; but having said so much con
cerning the mines of Germany, we need not en
large on this part of our subject. However,
is certainly necessary to observe, that Bohem
and Silesia abound more with agates, garne
sapphires, amethysts, and other precious ston
than any part of Germany, or indeed of
rope.—Of the agate and garnet we have
ready taken notice in our first volume; the o
gems require a brief description.

The Sapphire, which some call the ger
gems, is a very beautiful stone, of a deep
colour, approaching very near to the diamo
lustre, transparency, and hardness. This
finest and most valuable kind of sapphir
those of Bohemia and Silesia are somewhat
and of a paler blue, and are improperly
Water-Sapphires. Some of these gems h
colour at all, being pellucid as the clearest
and resembling a diamond; and others
white milky cast, with a slight tinge
They are found of various forms and size
times three quarters of an inch, but seldo
one sixth of an inch in diameter. A sa
the deepest blue may be perfectly depri
colour by fire, so as to resemble those
naturally colourless, and even to pass
mond.——The sapphires brought fro
Indies are called Oriental, and those fo
rope are termed Occidental; which la
often beautiful, are very inferior to
both in lustre and hardness.

*The Amethyst* is a gem of a bea
being a mixture of blue and red; w

of these tinges prevail, form different degrees of purple. Sometimes it is found quite colourless; and whether naturally so, or divested of its colour by means of fire, it is scarcely to be distinguished from a diamond, except by its degree of hardness. This gem is found of various sizes, from that of a small vetch, to an inch and a half in diameter; and its forms are likewise different, being sometimes roundish, sometimes shaped like a pear, but most commonly hexangular and pointed like crystals.—The oriental amethysts are generally reckoned the best; but some of those found in Silesia and Bohemia, as well as in other parts of Europe, are little inferior to those brought from the Indies.

Besides the native fossils here mentioned, Germany abounds with those of the extraneous kind, viz. bodies of the animal or vegetable kingdoms accidentally buried in the earth, such as trees, leaves, herbs, shells, teeth, and bones of fishes or land-animals, &c. which are found more or less altered from their original state, according to the time they have lain, and the matter wherein they have been immersed. Of these adventitious fossils we have given a general account in speaking of Great Britain, which affords them in great abundance; nor can the reader expect a more particular description, unless in treatises written professedly on the subject. It is proper, however, to observe, that whole trees, or considerable parts of them, are most frequently found in bogs or peath, and sometimes scarce altered at all, except colour, the oaks in particular being commonly ed to a jetty black. Branches of trees are found bedded in strata of clay or stone; and nents of wood, chiefly of oak, are sometimes with among gravel, and in several other

strata; and many of these being filled with talline or stony particles, but still retaining veins of wood, make a beautiful appearance polished. Instances of wood perfectly petrifi changed into stone, are not uncommon; th many substances have been mistaken for pet wood, and preserved as such in the cabine the curious. The smaller plants and leav trees are commonly found immersed in a slaty stone over strata of coal; but in Ger they are frequently contained in a whitish somewhat harder than chalk, as well as in stones of different colours. These plants principally of the fern kind, and what is ver prising, many of them seem not to be of Euro growth, but peculiar to America, and other of species to us unknown. The leaves of most frequently found in Germany are those willow, white thorn, and poplar; also the branches of box and thyme, ears of barley, mosses of various kinds. Of animal substa particularly shells, teeth, bones, &c. we fi almost infinite variety, and sometimes com fishes, either closely bedded in stone, or in of a looser nature; and amongst these bodie not uncommon to find the shells of fishes belo only to distant seas, as well as several unk species. As to land-animals, we have perha instances of their being found entire in the e but parts of them are very common, and t such places and quantities as are calculated t ite our admiration and astonishment. The d grinders of elephants, horns of deer, te nes, and the larger bones of various ki mals, are often found loose in the earth sometimes immersed in the hardest stone.

of these, by the coppery particles they have lain amongst, become spotted and veined with blue, which colour being diffused through them by putting them in a gentle fire, they sometimes resemble the native turquoises, so as to deceive the jewellers themselves: and what we call the Unicorn-stone, the Unicorn fossil of the shops, is nothing but such a bony substance impregnated with a kind of earthy spar, commonly found in the caverns of Germany. Parts of fishes are more frequent in the fossil world, than the whole bodies of them; and yet Germany and other countries afford many instances of entire fishes immersed in stone, flatted indeed, but perfect in their forms, and easily distinguished as to their several species. The Glossopetræ, vulgarly supposed to have been the tongues of serpents petrified, are found in vast numbers in Germany, and are now well known to be the teeth of fishes; and several mistakes, with respect to the origin of fossil bodies, may probably be yet discovered by more accurate enquiries. As to fossil shells, which constitute the most numerous class of animal substances buried in the earth, they are found in most parts of the world, and many of them are extremely beautiful; but their variety is almost endless.

Hungary is remarkably well stocked both with metals and minerals; for it not only contains mines of gold, silver, and copper, but also salt, vitriol, quicksilver, &c. &c.

Of the Hungarian gold mines, the most considerable is that of Chremnitz, which is about nine hundred and sixty feet in depth, several miles in length, and has been wrought above nine hundred and forty years. The veins generally run in a *north or easterly* direction, and the miners direct

themselves, in their subterranean progress
compass. Some of the old passages in this
by being long disused, are entirely clos
again, and others are becoming very narrow
rocks growing and uniting by degrees, esp
in moist places. Pieces of pure gold, of a
derable size, have been sometimes found
mine; but the gold is generally bedded in
of stony glebe, or ore of different colours.
ous methods are used to separate the gold
the ore, but the most usual one is thus—Af
ore has been broken and pounded very sma
workmen lay it upon fine cloths, washin
stirring it about until all the earthy parts are
ed away, and the heavier metalline partic
main behind. The cloths used upon this oc
are afterwards washed clean in several tub
water is again poured off from its sediment
the metalline particles, after being well k
with quicksilver, are washed a third time
wooden vessel. The gold and quicksilver
then thoroughly mixed, they strain off as m
the latter as they can, through two cloths, a
the remaining mass upon a perforated plate
a deep pan fixed in the ground. This pan
closely covered, and a charcoal fire kindled
it, the remaining quicksilver is drawn dow
the bottom of the pan. The gold is then t
into a fire, where it undergoes a complet
fication.

At Schemnitz are six famous silver mine
of which is four hundred and twenty fee
and being of an earthy soil, its ore is parti
esteemed. In another of these mines is a
*shirel*, twelve yards in diameter, which is
a subterraneous water-fall, and woth

ines that raise the water from the bottom of the
es. The best kind of silver ore is of a black-
colour, mixed with a shining yellow sub-
ce; but the ore found in these mines differs
materially in its richness, some of it yield-
.wenty ounces, and some not above one ounce
hundred weight. To separate the silver, the
is melted in a furnace, whence it runs into a
and acquires a hard scum, which is taken off
ıe workmen, who also add a portion of lead
e remaining silver. This being again melted,
ead, and what other mixture may still remain,
ıs on the top, whence it is blown by bellows,
becomes litharge, which is frequently used by
ers, painters, dyers, &c.

he salt mines near Eperies, in Upper Hun-
, are said to be a hundred and eighty fathoms
epth, and the salt runs in such prodigious large
s, that the miners sometimes dig masses of ten
sand weight; but these are usually cut into
re pieces about two feet long, and twelve
es thick, for the conveniency of drawing them
of the mine. The colour of the ordinary stone
ther grey, but when broken and ground for
it becomes as white as if it had passed through
ands of a refiner. Some of the salt is of a de-
e blue colour, some yellow, and some as hard
transparent as crystal, the latter of which is
iently wrought into toys, or elegant small
ils. The water of this mine, when boiled,
ds a blackish salt, which is generally given
ttle.

ı attentive spectator in roving through these
rraneous caverns, must of necessity admire
arious flowers of salt, which grow like the
of a goat, but appear of superior fineness and

delicacy. These plumes are extre
and will easily melt in moist plac
consist of the purest, whitest, and
mild salt that can be imagined. T
however, to be found in all the cu
times: for their appearance depends
the temperature of the season. But
remarkable curiosity in this mine is a c
an altar, pulpit, sacristy, and seats,
of a rock of salt; this chapel is sufficie
accommodate a hundred persons, and
service is annually celebrated by a Je
neighbouring town.

In the neighbourhood of the copp
Hungary, and sometimes in the mine
are found small streams of clear vitrio
which if a piece of iron be dipped, it
ately covered with a thin crust of cop
suffered to remain long in the water
dissolves, and copper is left in its p
stead, which boiled to a proper cons
yields a beautiful
shooting into regular figures, consi
cubes.

From a variety of instances respe
petrifying powers of vitriolic water, we
conclude with the following extract fr
Philosophical Transactions:—In the year
body of a man was found under water
mine, eighty-two fathoms deep, w
been accidentally killed by the falling
which had crushed both his legs and
But his face, body, and clothes, were
entire, and free from putrefaction,
vitriol, with which the mine
Hence the consuming

and a woman to whom the defunct had promised marriage, it appeared that the body had lain under ground forty-nine years; yet not only his clothes and linen, but even his flesh and skin, which were almost as hard as horn, had been preserved from corruption by the vitriolic water.

## ANIMALS.

THE animal productions of Germany differ but little from those of the countries already described. But the Gluttons and Larks, which are found here in great abundance, require a description, and may, probably, be deemed interesting by the generality of our readers.

The Glutton is generally three feet long, exclusive of the tail, which measures ten or twelve inches; the top of the head, and the whole of the muzzle, back, and feet are of a blackish brown; the sides are dusky, and the tail of the same colour as the body.

The stratagem adopted by these animals in taking their prey (which is generally some species of deer) is extremely singular. It is said that they climb into some tree, and carry with them a quantity of moss, to which the deer are remarkably partial. When one of these animals approaches the tree, the Glutton throws down the moss. If the deer stops to eat, the Glutton immediately darts upon its back, and, fixing himself firmly between the horns, tears out its eyes, which occasions such insupportable anguish, that the suffering deer, either to put an end to its torments, or to deliver itself from so cruel an enemy, strike

its head against the trees till it falls down dead: the Glutton then divides its prey into convenient portions, and conceals part of them in the earth for future provisions. Deers, however, are not the only animals liable to these barbarous outrages; for the Glutton will also prey indiscriminately on hares, rabbits, mice, birds, &c. and will sometimes carry its voracity to such a degree as to be obliged to squeeze its swoln body between two trees, in order to exonerate its stomach of that food which it has not time to digest.

It sometimes happens when this voracious creature seizes a carcase larger than himself, that he will not desist from eating till the whole be consumed; and it is asserted, upon respectable authority, that a Glutton, being chained to a wall, actually attempted to devour the stones and mortar.

The strength of this quadruped is so prodigious, that three stout grey-hounds are scarcely able to overpower him; and when attacked he makes a most desperate resistance; for he will even tear the stock from a gun with his teeth, and break in pieces the trap which confines him. He is capable, however, of being rendered tame, and of learning many curious and entertaining tricks.

In a state of nature, he suffers men to approach him without discovering the least symptom of timidity, or an apparent wish to avoid them. This may probably result from his always proving victorious in his contests with other animals. He is hunted for his skin which is extremely valuable.

Hares are well known in England; but those of Germany are particularly celebrated, and are so extremely numerous, that Keyster informs us, the [illegible] alone produced six thousand dollars every [illegible] city of Leipsic, exclusive of the sum

which were raised in the same manner in other parts of the country.

The sky-lark forms its nest on the ground, between two clods of earth, and lines it carefully with dried grass and other suitable materials: here the female lays four or five eggs, and in about a fortnight, she may be seen fluttering over the heads of her newly hatched offspring, anticipating their little wants, and guarding them from danger.

The lark is chiefly heard in the morning and evening, and is one of those few birds that chaunts its mellow notes while soaring through the air. Thomson has thus described it as the leader of the tuneful choir.

"Up springs the Lark,
"Shrill voic'd and loud, the messenger of morn;
"Ere yet the shadows fly, he, mounted, sings
"Amid the dawning clouds, and from their haunts
"Calls up the tuneful nations."

These birds commence their dulcet strains early in the spring, and continue them during the whole of the summer; but in winter their song entirely forsakes them. They then assemble in flocks, grow fat, and are taken in vast numbers by the bird-catchers. Those caught in the day time are taken in clap-nets about fifteen yards long, and two and a half broad, and are enticed by a decoy lark, and by means of bits of looking-glass, placed in the centre of the net, and put into a quick whirling motion. But when the weather becomes gloomy, it is customary to make use of a trammel-net, twenty-seven feet long, and five broad, which is put on two long poles, and carried by men who pass over the fields, and when they hear or feel that a lark has the net, they drop it down and secure him.

With respect to vegetables, Germany pro
nothing worthy of particular description:
soil however is tolerably fertile; and it i
opinion of naturalists that, had the Ger
even before the middle of the last century,
acquainted with agriculture, their country v
have been the most fruitful of any in Europe.

## MISCELLANEOUS CURIOSITIES.

SEVERAL towns in Germany are note
tuns or wine-vats of an uncommon size, but
of Heidelberg, which stands in a vast cellar u
the elector's castle, is, of all others, the
celebrated. The first we hear of was
enough to contain 528 hogsheads of wine
this was rebuilt in 1664, and made to hold
hogsheads English measure. The old one
iron hoops, each weighing above 1200 pou
but the new one was girt about with very st
ones of knee-timber, adorned with paintings
inscriptions, and supported by carved pedes
there was also a stair-case, of forty-three s
which led to the top of it, where the ele
themselves have had frequent carousals. Th
apprehend was the tun that Dr. Burnet (a
wards bishop of Sarum) saw at Heidelber
1686, which he says was seventeen feet l
twenty-six feet long, and built with a stre
more like that of the ribs of a ship than the st
of a tun. It is said this prodigious vessel
emptied and broken to pieces by the Frenc
1688, but that another was afterwards made
*larger bulk.*

*The tun of* Konigstein, built by order

neral Kyaw, is however still larger, its length being seventeen Dresden ells, and its diameter at the bung twelve ells. It consists of one hundred and fifty-seven staves, eight inches thick, and fifty-four boards for the heads. It holds 3709 hogsheads of wine; and upon one head is a Latin inscription. The top of the cask is railed in, and affords room for fifteen or twenty people to regale themselves.

The great bell at Erfurt is reckoned the largest in Europe, weighing upwards of twelve tons, being near eleven feet in height, and about as many yards in circumference. We are told the sound of this bell may be heard at the distance of four and twenty miles, which does not appear utterly improbable *.

* It may perhaps seem strange to some readers that the sound of bells which hang in plains and valleys may be heard farther than those which are placed upon hills; but the reason of this will be understood by considering, that as air is the medium of sound, the higher the sonorous body is placed, the more rarified is that medium, and consequently the less proper vehicle to convey the sound to a distance. We may also observe, that the sound of a bell struck under water is a fourth deeper than in the air, as has been found by experiment; though Mersenne says it is of the same tone in both elements.

With respect to the velocity of sound, the most celebrated philosophers differ about it; but Dr. Derham, by the nicest experiments, found that it flies at the rate of an English mile in nine half-seconds and a quarter, or 1142 feet in one second of time; and in this he agrees with Mr. Flamstead and Dr. Halley. The same gentleman observed, that there is some difference, though a very small one, in the swiftness of sounds with or against the wind, or according as the wind is stronger or weaker, but that nothing else accelerates or retards their motion; that they *fly equal* spaces in equal times; and that al

An intelligent tourist who visited the city of Bremen, in Germany, in 1774, says, "There is one peculiarity belonging to this city, of the reality of which nothing but ocular demonstration could have convinced me. Under the cathedral church is a vaulted apartment, supported on pillars; it is nearly sixty paces long, and half as many broad; and light and air are both admitted into it by three windows, though it is several feet beneath the level of the ground. Here are five large oak coffers, each containing a corpse, which without being embalmed, have suffered no corruption. The most curious and perfect, is that of a woman, said to have been an English countess, who dying at Bremen about two hundred and fifty years ago, ordered her body to be placed in this vault unin-terred, in the apprehension that her relations would cause it to be brought over to her native country. Though the muscular skin is totally dried in every part, yet so little are the features or skin changed, that nothing is more certain than she was young, and even beautiful. The counte-nance is small and round in its contour; the car-tilage of the nose and the nostrils have undergone no alteration; and even the teeth are all firm in the sockets, though the lips are drawn away from over them. The cheeks are shrunk in, but yet less than I ever remember to have seen in em-balmed bodies. The hair of the head is more than eighteen inches long, very thick, and so fast that I lifted the corpse out of the coffer by it: the colour is a light brown, and as fresh and glossy as

inds of sounds, whether of bells, guns, or any other *onorous* bodies, whether loud or languid, move with *e same degree* of velocity.

that of a living person. That this lady was of high rank seems evident from the extreme fineness of the linen which covers her body; but I in vain endeavoured to procure any accurate account of her history. Though I took no little pains for that purpose. The landlord of the inn, who served as my conductor, said he remembered it for forty years past, during which time there has not been the least perceptible alteration in it. In another coffer lies the body of a workman, who is said to have tumbled off the church, and was killed by the fall. His features evince this most forcibly. Extreme agony is marked in them; his mouth and eye-lids are open; his eyes dried up; his breast unnaturally distended, and his whole frame betrays a violent death.

"There are, also, in this vault, turkeys, hawks, weasels, and other animals, which have been hung up from time immemorial, and are all in the most complete preservation, and unaltered in their parts. The cause of this phenomenon is doubtless the dryness of the place where they are laid."

## ANTIQUITIES.

The town of Nassau, in the Wetteraw of Germany, was, in ancient times, a very considerable place, as appears from several remains of Roman ways, in the neighbourhood, with cirques aqueducts, triumphal arches, and various other monuments of Roman magnificence.

the famous Golden Bull, or imperial constitu-
made by the emperor Charles IV. there are
originals, one of which is preserved at

Prague, another at Nuremberg, and a third in the town-house of Frankfort. It is a small quarto manuscript, written in Latin; and consisting of forty-two leaves of parchment. This is accounted the magna charta, or fundamental law of the Germanic empire, and it is called the Golden Bull because it has a golden seal, tied with red and yellow cords of silk, in the manner of a papal bull; upon one side is the emperor sitting on his throne, and on the other the capitol of Rome. It is also called Caroline from Charles IV. Prior to the publication of this famous bull, the form and ceremony of the election of an emperor were dubious, and the number of electors undetermined; but this edict settled these important points, and also regulated the functions, privileges, and pre-eminences of the electors. It was universally approved of by the princes of the empire, and remains still in force.

The city of Nuremberg, in the circle of Franconia, has the charge of most of the imperial ornaments which are said to have been the property of Charlemagne, and are always used at an emperor's coronation. These are Charlemagne's crown, which weighs fourteen pounds, and is enriched with a great profusion of rubies, emeralds, pearls, and diamonds; the Dalmatic robe, or mantle, richly embroidered with large pearls; Charlemagne's sword; the golden globe and sceptre; the imperial mantle, elegantly embroidered with eagles, and bordered with emeralds, chrysolites, diamonds, and sapphires; the buskins, covered with plates of gold; and the coronation gloves embroidered with a variety of precious stones.

*In the* cathedral church of Cologne is a la*purple shrine*, spotted with gold, and set wi

estal of brass, in the middle of a square mau-
um, faced both within and without with jasper.
is shrine is said to contain the remains of the
e wise men who went to Bethlehem, in order
vorship the Messiah, and who are said to have
n removed, first to Constantinople, then to Mi-
and finally to Cologne. They are generally
ed the three kings of Cologne, and their names,
ch are Gaspar, Melchior, and Balthasar, are
ten in purple characters upon a little grate that
lorned with a remarkably large oriental topaz,
a profusion of pearls and precious stones.
r against the shrine are six large silver
ches, perpetually illuminated with wax can-
. This celebrated shrine is said to be opened
y morning at nine o'clock, when the wise men
seen at full length, each having on his head
legant crown of gold, richly garnished with
els.

n the town-house of Cologne is deposited a nu-
ous collection of antique arms, consisting of
rs, arrows, bucklers, &c.; and among the
is a cross-bow of whalebone twelve feet long,
t inches broad, and four inches thick.

In the ramparts of Brunswick is a curious brass
tar-piece, (made in 1411) which measures ten
in length, and nine in diameter. It requires
-two pounds of gunpowder to charge it; and
throw a bomb of one thousand pounds weight.
s also asserted that this extraordinary piece
carry a ball of seven hundred and thirty
nds weight to the distance of thirty-two thou-
d paces.

n the imperial library at Vienna, are many cu-
s and valuable manuscripts in Hebrew, Sy-
c, Arabic, Turkish, Armenian, Coptic, and

Chinese characters; but the antiquity of some of them is questionable, particularly a New Testament in Greek, said to have been written fifteen hundred years ago, in gold letters upon purple. Here also are many thousand Greek, Roman, and Gothic coins and medals.

## BUILDINGS.

THE cathedral church of Vienna, dedicated to St. Stephen, is a most stately fabric, and generally admired, though some object against the darkness of the inside, occasioned by the painted glass of the windows. The steeple is certainly one of the strongest and loftiest in Germany, being four hundred and sixty-five feet high; and under the cross on the top there were formerly the Turkish arms, viz. a half moon and star, set up by the citizens when Solyman the Magnificent besieged the city, because he agreed to spare the steeple on that condition. This church contains many sumptuous monuments of princes, and other great persons, the altars are richly adorned, and upon the whole the beauty of the inside is answerable to its majestic appearance without.

The cathedral of Saltzburg is a magnificent edifice of free-stone, having a very stately front, and is reckoned one of the completest in Germany. It is built in form of a cross, with a lofty dome which separates the nave from the choir. The inside of the church is adorned with pilasters of the Corinthian order, and the pavement consists of large squares of marble of various colours. The high altar is of beautiful marble, where-

d, on grand festivals, a sun of gold, set precious stones of immense value; also a cross of solid gold, and four golden candles. Here is an organ remarkable for its large besides four others of a smaller size; and gst the principal ornaments of this church ay reckon four marble statues of St. Peter, St. St. Rupert, and St. Virgilius: St. Rupert id to have been the first bishop of Saltzburg. ose who have a taste for Gothic structures carcely find any in Germany more beautiful the cathedral church of Bamberg, in Fran, which is a vast edifice, having a lofty le, and four noble spires of bold wokmansupported by tall pillars that appear remarklight and graceful. The emperor Henry as the founder of this bishoprick, and his , with that of his consort, are to be seen in thedral, besides very handsome ones of seof its bishops. In the treasury of the church l preserved the imperial crown of the said ror, consisting of six plates of gold adorned precious stones; and another of his empress, osed of two circles of gold, set also with and jewels. Here is a statue of the Virgin , five feet high, all of solid silver; and anof St. George on horseback combating the n, which is of silver gilt, and seven feet Amongst many other rich curiosities are ne vases of porphyry, a portable altar of gold, a little tabernacle, and a large cha the same metal, a shrine of gold for relicks, fine crucifix of rock crystal, the figure of being of solid gold, and the whole adorned bies and emeralds. To these we may add cross of gold eighteen inches long, and

another yet larger of silver gilt, both giv
Henry IV. But one of the greatest rarities
treasury is a folio manuscript of the four gos
Latin, written upon fine vellum in a neat
character, interspersed with some Gothic
and most beautiful miniatures. The covers
wood, curiously inlaid with figures in ivor
prenting our Saviour's passion, and on
border are the heads of the apostles and e
lists. The candlesticks, lamps, censers o
and silver, and other utensils belonging
treasury, are equally numerous and magnif

The cathedral of Ulm, in Swabia, now
ing to the Lutherans, is a lofty and well-
tioned structure, and confessedly one of th
in the empire. It is said to have been a
hundred years in building, and that the ve
of it cost one hundred and thirty-five th
pounds sterling, exclusive of the windo
which there are six in the choir, most bea
painted. This church has a large square
and five stately spires, one of which is su
by six and thirty pillars. The tabernacle de
to contain the consecrated host, is a curiou
of work, and said to have cost a hundre
sand florins, being formed of a singular
marble, and adorned with statues. The
also abounds with several beautiful sculptu
presenting pieces of scripture-history; a
noble organ was more than twenty years
pleting. It is thirty-nine feet high, and
ight broad, has sixteen pair of bellows, an
ree thousand pipes, of which the lar
thirteen inches in diameter.

*In the late* Austrian Netherlands are many
*ful and stately* churches, but none finer than

Antwerp. The cathedral of that city is a most magnificent structure, being more than five hundred feet long, and two hundred and thirty broad; and its steeple may be justly ranked amongst the noblest in Europe. It is four hundred and sixty-six feet high, and is such an excellent piece of architecture, that the emperor Charles V. when he made his entry into Antwerp, said, "it ought to be put into a case, and showed only once a year as a rarity." The altars and chapels within this great church are finely adorned with paintings by Rubens, and other eminent masters. Amongst these are some good pieces of Quintin Massey's, a blacksmith of Antwerp, of whom the following anecdote is related. Massey falling in love with a painter's daughter, asked her in marriage; but her father told him, he would never give her to any one except a painter. Upon this the suitor went to Italy, applied himself to painting, and in a few years returned home a greater master than his sweetheart's father. He is interred at the entrance of the cathedral of Antwerp, where his effigy is put up with this inscription:

*Connubialis amor de Mulcibre fecit Apellem,*

which has been thus humorously translated.

Love's power (can any thing be quainter?)
Transformed a blacksmith to a painter.

The real meaning of the line, however, is that conjugal love made an *Apelles* of a blacksmith.

The Jesuit's church, in the same city, is a structure which is equalled by few, and scarcely excelled by any, whether we regard the materials, the workmanship, or the variety of fine paintings done by the celebrated Rubens. The interior is lined with white marble, and the roof supported by co-

mns and statues, and the palace furnished
e Italian taste, with sculptures, paintings, an
ntiques. Among the paintings are several piece
y Rubens and Raphael. The saloon is elegant
nd lofty, and the vaulted roof, and the cielings of
ie first and second stories, are finely painted
y Belluci.

The elector of Bavaria's palace at Munich, is a
ble structure, fit for the reception of the great-
st monarch in Europe, with his guards and at-
ndants. It is said to contain eleven courts,
x chapels, twenty halls, two thousand six hun-
red windows, nineteen galleries, sixteen kitchens,
velve large cellars, and forty apartments, all on
floor, in which are three hundred rooms richly
rnished, and filled with paintings, statues, bas-
-relievos, and other ornaments. The chief front
this stately edifice, however, has the resem-
nce of a convent, to which the image of the
gin Mary over the great gate contributes not
tle; and it is also observed, that having been
t at several times, the architecture is some-
t irregular. But the beauty of the inside is
rkably striking, and the emperor's apart-
is particularly admired. The great hall is a
ed and eighteen feet long, and fifty-two
, and is adorned with several curious pic-
taken from subjects of sacred and profane
. The chimney-piece is also embellished
e figures, amongst which is a statue of
, representing Virtue with a spear in her
d, and a palm-branch in her left. It is
Gustavus Adolphus, king of Sweden,
elighted with this hall, that he wish-
re possible to transport it to Stockholm.
the electors added a new apartment

to this palace, which, though not so large as the emperor's, surpassed it in elegance and splendor, and was adorned with paintings, antique busts and vases of great value; but in the year 1730, this apartment was unfortunately destroyed by a fire which broke out in the night-time, so that scarcely any of the fine furniture was saved, and the elector and his consort narrowly escaped with their lives. In the little chapel belonging to the apartment of the electress, hardly any thing was to be seen but gold, pearls, and jewels; and the furniture in general was rich beyond imagination; and in the treasury were whole services of gold-plate and other costly vessels, with an incredible number of diamonds, rubies, and other precious stones, besides many fine paintings, statues, busts, &c. with which the galleries, halls, stair-cases and chambers were adorned. How much of the rich furniture and treasure here mentioned is still remaining in this electoral palace, we cannot pretend to assert with any degree of accuracy.

The elector's palace of Nymphenbourg is charmingly situated in the middle of a large plain, and affords from the windows of the second story a prospect of innumerable rural beauties. The grand avenue leading to this palace consists of a double row of elms on each side of a noble canal which has two spacious basons adorned with water-works. By a flight of marble-steps is an ascent into a very large and lofty saloon, from whence on each hand there is a passage leading into several apartments richly furnished. The first attractive object in the garden is a parterre of vast extent, at the entrance of which there is a *bason*, with a groupe of gilded figures, representing Flora receiving flowers from Nymph

pids. This parterre is terminated by a lightful wood, through which are cut three the middlemost of which fronts the grand n of the palace, and has a large canal run- e whole length of it, and terminating in a scade. The walk on the right hand leads nicircular mall, at the entrance of which is ty pavillion called Pagodebourg, being i the form of a Pagod * or Indian temple; : Indian furniture of this little palace is sur- ly neat and elegant. In the walk on the id is a larger building called Badenbourg, bathing-house, lined with marble, and d with statues and vases: here is also an ent richly furnished, and embellished with s, paintings, and other ornaments. This is surrounded with fine pieces of water, es, and statues; and, in a word, both art ture seem to have conspired to render the s magnificent and delightful.

: bishop of Bamberg has two palaces in ity; one of which is a vast pile of free- three stories high, with a very regular between two noble wings, containing and commodious apartments, well fur- , and adorned with excellent paintings. uilding is of free-stone, built in the form of are, with four large towers, one at each r; and all round the court within is a noble t. Here also is a magnificent staircase, ie of the best-contrived in Europe, which is

* name the Portuguese have given to the temples Indians, Chinese, and other eastern idolaters. It ed to *signify* the idol adored in the temple; and *rise the name* of a gold coin current in several *the Indies.*

His Prussian majesty's palace at Be
capital of the electorate of Brandenbu
stately fabric of free-stone, consisting
stories. It was begun by Frederic I. i
and having been the work of several a
the fronts are not exactly regular. Th
ments are large, the cielings lofty and be
painted, and the furniture truly royal, the
particularly such a quantity of silver, as is
to be paralleled in any other palace in
Most of the tables, stands, looking-glass
chandeliers, screens, &c. are of that
and there is a beaufet, which takes up o
side of a room, filled with cisterns, large
and other vessels of silver gilt. Here
gallery adorned with paintings by the b
ters; and on the cieling are represen
principal actions of Frederic I. The hal
wise decorated with several noble pa
and the grand saloon is hung with tape
presenting our Saviour driving out the

ted in the same style. Formerly there were some
ıe gardens belonging to this edifice; but these
e now converted into a place of arms.

The arsenal is one of the noblest structures of
e kind in Europe, and consists of four grand
ıildings that form a spacious square in the mid-
e, like a college; and each front is adorned
ith a noble portico. On the principal gate is a
edallion of Frederic II. in bronze, and the four
ırdinal virtues, placed on pedestals, on each side
the portico seem to look at the royal portrait,
hich is supported by Fame and Victory. The
orinthian order is prevalent in the first stage,
ıd is managed with considerable art; the upper
ırt of the edifice is surrounded with a handsome
ıllustrade, adorned with trophies and statues,
nong which appears Mars seated on a heap of
ilitary weapons; and the whole is bounded with
ɔn, in the shape of cannon, which are placed
proper distances, and support festoons of chains,
prevent passengers from approaching the
indows below. The lower apartments are filled
ith a great number of brass cannon, and the
alls and pillars are adorned with a variety of
ırasses and helmets.

The opera-house, which also belongs to his
ussian majesty, is an elegant modern edifice:
e front has a noble portico, supported by Co-
ıthian columns, and a pediment adorned with
sso-relievos and statues; and the columns that
pport the roof throw the whole into a grand
loon. The scenery is painted in an exquisite
le; the orchestra, consists of about fifty per-
mers; and the seats are capable of accommo-
ating two *thousand* persons.

*nterior of* the royal stables, which stand

beautifully painted, as well as the cieling
principal apartments. The saloon whic
as a passage to the garden is also finely
and adorned with marble statues; and
furniture and ornaments of the palace, as
the apartments themselves, are disposed
utmost elegance and judgment.

His Prussian majesty's palace at Ber
capital of the electorate of Brandenbur
stately fabric of free-stone, consisting
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ters; and on the cieling are represent
principal actions of Frederic I. The hall
wise decorated with several noble pai
and the grand saloon is hung with tapes
presenting our Saviour driving out the
changers, the miraculous draught of fish
the institution of the holy sacrament.

The throne in the audience chamber is of
elegantly embroidered with gold; and in
quarter of the palace is a magnificent
crimson velvet, adorned with upwards
*hundred* cyphers and electoral crowns, all s
*pearls: the* chairs in this apartment are

ated in the same style. Formerly there were some ne gardens belonging to this edifice; but these re now converted into a place of arms.

The arsenal is one of the noblest structures of he kind in Europe, and consists of four grand uildings that form a spacious square in the mid-le, like a college; and each front is adorned vith a noble portico. On the principal gate is a nedallion of Frederic II. in bronze, and the four ardinal virtues, placed on pedestals, on each side f the portico seem to look at the royal portrait, vhich is supported by Fame and Victory. The Corinthian order is prevalent in the first stage, nd is managed with considerable art; the upper art of the edifice is surrounded with a handsome allustrade, adorned with trophies and statues, mong which appears Mars seated on a heap of ilitary weapons; and the whole is bounded with on, in the shape of cannon, which are placed t proper distances, and support festoons of chains, o prevent passengers from approaching the vindows below. The lower apartments are filled vith a great number of brass cannon, and the valls and pillars are adorned with a variety of uirasses and helmets.

The opera-house, which also belongs to his Prussian majesty, is an elegant modern edifice: he front has a noble portico, supported by Co-inthian columns, and a pediment adorned with asso-relievos and statues; and the columns that upport the roof throw the whole into a grand aloon. The scenery is painted in an exquisite tyle; the orchestra, consists of about fifty per-ormers; and the seats are capable of accommo-lating two thousand persons.

*The exterior* of the royal stables, which stand

near the palace, exhibit a gothic appearance, within they are extremely magnificent. mangers are all of stone; the pillars that d the stalls are of iron adorned with the king' pher; and above the racks are pictures o finest horses which his majesty's stud has duced. Over these stables are large ro containing a rich variety of horse furniture, ticularly the horse equipage of Frederic I. al metallic part of which is gold enriched with monds. Here also are some handsome a ments for the officers of the stables.

Sans Souci is a palace in the vicinity of dam, situated on an eminence, and commar a fine prospect of the town, and a branch o river Spree which washes the gardens. apartments are chiefly on the ground floor they are justly admired on account of their r larity, and elegant ornaments, among whici fine collection of statues from the cabinet o tiques, formerly in the possession of car Polignac. In the centre of the edifice is a circular hall, lined with marble, supported series of magnificent columns, and adorned several fine paintings: the principal beauty o saloon, however, consists in its marble which is disposed into representations of va flowers, after the Florentine manner, and prod a most enchanting effect.

From the palace to the garden is an eas scent of one hundred and twenty yards, b ranges of stone steps, and as many terraces, sides of which are planted with vines under frames. The lower part of the garden is ado with several fine statues, particularly drawing a net, and a Diana with game, destals, richly embellished with alto-relievo

he eastern extremity is an Egyptian pyramid, lecorated with hieroglyphics.

The electoral palace at Dresden is a very magificent structure, and abounds in various curioities which have been collected at an immense xpence. Mr. Hanway visited a part of this paace called the Grune Gewolbe, of which he nas iven the following account:

The first chamber contains a hundred small ut exquisite statues, principally in brass, among hich are equestrian statues of Augustus II. king f Poland, Frederic the Great, of Prussia, and ouis XIV. of France.

The second chamber contains a variety of ivory gures of exquisite workmanship; among which re Abraham offering up his son Isaac, a fine rucifix, and a ship completely rigged with ropes f gold wire.

In the third apartment are a profusion of lver ornaments, particularly a large fountain, nd four vases of an extraordinary size.

The fourth room contains vessels of pure gold, nd silver gilt, and an extraordinary degree of rilliance is occasioned by the pannels of the partment being covered with looking-glass.

The fifth is a spacious room, in which are a ariety of precious stones, wrought with great rt; a curious cup of lapis nephriticus; a ball of ure crystal, six inches in diameter; a large oblet set round with costly antiques; several fine bles in Mosaic work; a statue of Charles II. of ngland; and a most capital representation, in ood, of the angel Michael vanquishing the adrsary of mankind. The latter piece is said to ve been made in England, at the expence of e thousand five hundred pounds.

The sixth apartment contains a collection of precious stones, with an infinite multiplicity of pearls, set in a variety of elegant forms.

In the seventh and eighth chambers are several glass cases, stored with jewels of immense value. Among other rich curiosities is a fine representation of the throne of the Great Mogul, in silver figures enamelled, and adorned with precious stones, with a view of tributary princes offering their presents, attended by soldiers, servants, elephants, &c.

The cabinet of curiosities, called the Kunts-kammer, consists of ten chambers, but a particular description of these would exceed the limits of this part of our work; suffice it therefore to observe, that here are deposited some capital collections of engravings, minerals, ores, petrifactions, anatomical preparations, corals, vegetable productions, skins of fishes stuffed, and skeletons of lions, bears, and other extraordinary animals. Here also is a capital model of Solomon's temple with all its furniture, which cost twelve thousand crowns.

The gallery of pictures contains one hundred pieces of superlative value, all said to be originals, and to have been purchased at the price of five hundred thousand crowns. The whole collection consists of about two thousand paintings by Raphael, Rubens, and Corregio; and their aggregate value is estimated at half a million sterling.

The edifice called the Chinese palace, is pleasantly situated on the Elbe, and forms a capital object of attraction. It is built in the Chinese *taste throughout*; and in its apartments are many *natural and* artificial curiosities. Among t

articles are forty-eight large china vases, which the father of the present elector was armed, that he purchased them of his Prus- majesty, at the price of a whole regiment of ons.

e gardens are extremely beautiful, and con- small tasteful edifice, in the front of which eld for tournaments, and behind is a sheet of r. Here also are many marble statues of a al size and excellent workmanship.

e palace of Saltzdahlen stands about a Ger- mile from Brunswick, and is chiefly con- ed of timber, lined with painted cloth, h gives the apartments an air of grandeur at all expence. The picture gallery contains capital productions; the left wing is furnished grotesque taste, with porcelain; and another ed with painted enamelled ware, a consider- part of which is said to have been executed aphael d'Urbino, who was enamoured of the r's daughter.

nong the most capital paintings are Adam Eve viewing the dead body of Abel, and en- uring to open his eyes; Abraham embracing on after the trial of his faith; Judith and her dant holding the head of Holofernes; and delivered from prison by an angel.

e electoral palace of Hanover is pleasantly d on the banks of the Lena. It has several s, and many commodious apartments, some hich are hung with very rich tapestry. Here re a theatre and an opera-house where plays egularly performed, and concerts are given a week, when all the courtiers take place ding to their military rank. A guard is al-

ways mounted, and an open table kept for the council of state.

Herenhausen, situated about two English miles to the north of Hanover, is always considered as an object of attraction to travellers; but Mr. Hanway observes, that this celebrated palace fell vastly short of his expectations. It was built in the year 1670, by the elector Ernest Augustus: the greatest part of the edifice consists of wood, and the apartments, though very large, scarcely merit the epithet of handsome. Some of the furniture, however, is extremely rich, and the pictures are deservedly admired.

The gardens of Herenhausen are more worthy of attention than the palace, and are deemed superior in point of elegance, to any in the Germanic empire. The walks are laid out in a most beautiful manner; and the wilderness of evergreens, the orangeries, and the famous jet d'eau, which throws up water to the height of seventy feet, produce the most pleasing effects. Here also are several fine cascades and statues, and a sylvan theatre, on which plays and masquerades are occasionally exhibited.

We shall conclude this article with a brief description of the magnificent town-house at Augsburg, a structure which merits observation as much as any thing of the kind in Germany. It is a large square building, all of free-stone, except the portico, which is of reddish marble, crowned with a balcony of the same, and supported by stately columns of white marble. At the top of the front just below the pediment, is a large spread-eagle in brass, holding in its talons a globe and sceptre, the whole said to be two and twenty hundred weight, and to have cost above 1800*l.*

ng: and over the gate are the city-arms, orted by two brazen griffins of excellent manship. The great hall, which is 110 long and 58 broad, is paved with marble, ntened by 52 windows, and adorned with aintings and statues. The cieling is divided vast number of compartments, the squares annels of which are embellished with gilded tures and other ornaments. From this hall ascent into another of equal beauty and magnce, the workmanship of the cieling being rable, and every part of it adorned with a sion of fine sculpture, gilding, and painting. e four adjoining chambers, each forty feet e and nineteen in height, which are covered excellent pictures, the magistrates give au-e to the envoys of the emperor, the electors, other sovereign princes. There are likewise al chambers for the council, the court of e, &c. all filled with fine paintings, and the doors are the busts of Pagan and Chris-mperors. Amongst the many curious paint-o be seen about this noble edifice, there is n fresco upon a wall, which is fifty feet long wenty high, representing Solomon's recep-of the queen of Sheba.

## ARTS, INVENTIONS, &c.

IE genius of the Germans has appeared in vention or improvement of several mecha-arts, and amongst others they lay claim to nour of having invented the curious and *art of printing*. This art is indeed said to

be very ancient in China, but the Chinese manner of printing is quite different from that which is practised in Europe; though it must be acknowledged that the European printing, in its infancy, was much the same with the Chinese. However, as no correspondence then existed between Europe and China, (the passage into the East by the Cape of Good Hope, being undiscovered,) there is no reason to charge the Europeans with having borrowed their art from the Chinese, but each may be allowed to have fallen upon the same invention, though at very different times.

Printing, according to Father Le Comte, has been known in China from very remote ages; but the great difference between theirs and ours is very obvious; for whereas we have but a small number of letters in our alphabets, by the various arrangement of which we can form infinite volumes, and by making our characters moveable, we are able to print the largest works with an inconsiderable quantity of letter, the Chinese, by reason of the prodigious number of their letters, find it more easy and less expensive to cut them on wooden blocks, making as many blocks as there are pages in the book they intend to print, and these of no farther use but for that single work.

Who was the first inventor of printing in Europe, and in what city and year it was first began, are questions long disputed among the learned, and not yet thoroughly decided. The cities of Mentz and Strasburg, and that of Haerlem in Holland are the warmest in this point of honour, but Mentz has always had the majority of voices; *and as this is* a city of Germany, we think it pro-

per here to state the pretensions of each, without entering into a particular disquisition of the merits of the cause.—John Mantel of Strasburg, John Guttemberg, and John Fust of Mentz, and Laurence John Koster of Haerlem, are the persons to whom this invention has been most frequently ascribed, but the first seems to have had the fewest advocates. Mantel, a French physician, enters the lists in behalf of his namesake, and contends that he first invented printing in the year 1442, in consideration of which the emperor Frederic III. gave him a suitable coat of arms; and he adds, that Guttemberg, whom he made his associate, carried the art to Mentz, where he took in Fust as a partner.—Boxbornius, Schrevelius, and other authors refer the invention to Koster of Haerlem in the year 1430, adding, that Fust stole away Koster's materials, and set up printing at Mentz, assisted by his servant Peter Schoeffer, who afterwards married his daughter, and became his partner in the business; but others ascribe this theft to Guttemberg.—Polydore Virgil, Pasquier, &c. will have Guttemberg to be the inventor of printing; but Naude espouses the cause of Fust, whom he makes the first printer in Europe. His reason for ascribing the invention to Fust is, that his name appears in the most early printed books, as in the Latin Bible of 1462, Tully's Offices of 1465, and perhaps some of a prior date; and if Guttemberg or Koster had a greater or an equal share in the invention, it is probable they would not have allowed him to attribute the whole to himself and his son-in-law Schoeffer, as he has done, without contradicting him, and asserting their own *right*. He adds, that whatever is urged *in behalf of* Guttemberg, Mantel, or Koster, is

only founded on reports, conjectures, and forged authorities.

But the dispute is not thus terminated: the advocates for Koster make use of various arguments in his favour. Mr. Ellis (in the Philosophical Transactions) gives an account of books printed by Koster of an earlier date than any of those referred to Fust, and some even as early as 1430 and 1432. At Haerlem, indeed, they show printed books of that date, which seem to Mr. Ellis to put it out of doubt, that the honour of the invention belongs to Koster, and that Fust only established the art in greater perfection at another place many years after. Besides, it is allowed on all hands, that the DE SPIEGEL ONSER BEHOEDINGE (or Mirror of our Salvation) which is shown at Haerlem as the first printed book, could never be Koster's first essay. He must have made many trials on smaller works, and undoubtedly his first attempts were on loose and small leaves, which we may suppose were easily lost. Upon the whole, it is no inconsiderable argument in Koster's behalf, that the rudest and most artless performances in printing seem to be his; of which kind some things without date, are to be seen in the king's library at St. James's, and in the Bodleian library at Oxford. They bear marks of the utmost simplicity, and may be reasonably taken for first essays, being awkward and coarse, and the ink only common writing ink, which was spread upon wooden blocks, cut in a very clumsy manner.

Whoever therefore were the first printers, such was the art in its original state, several pieces in the Bodleian library, and that of Bennet's college being printed in this way; and the impression

ears to have been made only on one side of leaves, after which the two blank sides were ed together. But this method of printing n wooden cuts being found inconvenient, it not long before an improvement was thought viz. the making of single moveable letters, ch was first done in wood, and afterwards in al; from which last invention we must date origin of the present art of printing, as prac- l throughout Europe. This ingenious con- nce of casting single types in metal is gene- ascribed to the above-mentioned Schoeffer, servant, afterwards partner and son-in-law ust at Mentz in Germany; so that he was erly the first printer, as well as letter-founder; strictly speaking, the Bible, printed with eable types about the year 1450, was the first ted book, which was soon followed by edi- of Augustin De Civitate Dei, the Vocabulary ed Catholicon, Tully's Offices, and several r works.

is said that Fust (or Faustus, as some authors him) carried a parcel of his printed Bibles to s, and offered them to sale as manuscripts; the French, considering the number of the s, and their exact conformity to each other, to a point, and that the best writers could come up to such exactness, concluded there witchcraft in the case, and by indicting him magician, or threatening to do so, obliged him iscover the secret. Hence the origin of the lar story of Dr. Faustus.

om Mentz the art of printing spread itself in rt time through great part of Europe, and is nonly said to have been brought into England Haerlem in 1468, by William Caxton, a

merchant and citizen of London, who having been abroad in the Netherlands for many years, not only got an insight into the business, but prevailed with one of the workmen to come over and set up a press at Oxford, where an edition of Ruffinus on the Creed was printed in the same year. In 1470 Caxton is said to have brought the art to Westminster; but some writers make it appear, that he did not bring it to England till about the year 1474, and that the first book known to have been printed by him in English, was the History of Troy.

Here we cannot forbear observing, that though we allow the Germans the honour of having cast the first moveable letters in metal, and of being the first printers, the praise of having brought those arts to their present perfection is chiefly owing to other nations. The Dutch, French, and English, have all contributed towards it; and in particular our countryman the late Mr. William Caslon, by mere dint of genius, without being bred up to the art of letter-founding, arrived at an excellency far beyondall his predecessors in England, and even surpassing what is usually done of that kind in Holland, as the beautiful specimens of his own and his son's performances sufficiently demonstrate. By his ingenuity and unwearied application in this way, he has rendered an essential service to his country and to the learned world in general, and his reputation deserves to last as long as the art of printing can preserve it.

The matter of which the printing-letters consist is a compound metal, made up of lead, tin, antimony, &c. mixed in a certain proportion according to the discretion and experience of the founder. Each letter or character has its

trice, which is a piece of copper, whereon the
pression of such character has been struck by
ans of a steel punchion, on one end of which it
raven in relievo. In order to cast the letter,
matrice is placed at the end of an iron mould,
closed within two thin pieces of board, and con-
ing of several parts, which have different names
ording to their respective uses. Every thing
onging to the mould being properly disposed,
l the metal melted over the furnace, the work-
n takes the mould in his left hand, and dips a
ll iron ladle with a wooden handle into the
tal, which he pours into the jet or funnel of the
uld, by which it is conveyed to the matrice; at
same time moving his left hand briskly for-
rds, that the metal may run the better. This
ie, he unbends the bow, (which is a thick steel
·e, serving by its spring to press and retain the
trice in its place) and having opened the mould,
takes out the letter by means of a little hook,
ts it again immediately, replaces the matrice,
l casts a new letter: and thus he proceeds with
prising expedition till he has cast the number
uired. The letters are then examined, and
se that are defective thrown aside; the jets or
s are broken off; and the superfluous metal,
asioned by the mould's not being exactly closed,
leared away with a knife. After this the two
ad sides of the letters are rubbed on a hard
rse grained stone, the person rubbing them
ing his two fingers next the thumb covered
h a kind of finger-stalls made of leather, to
vent their being hurt by the friction; and in
ing the letters he makes use of his thumb so
bly, without discontinuing the motion, that a
tander might be easily deceived, and think

they had all the while been rubbed on one side only. The letters thus ground remain still to be justified, *i. e.* reduced to an exact height and thickness; for which purpose they are placed on a sort of wooden ruler with a little ledge at the bottom, and the narrow sides are scraped, which underwent no rubbing on the stone. To make them of an equal height, they are ranged upside down in an instrument, consisting of two long pieces joined together by screws, which being fixed firmly between two cheeks of wood, a plane is run along the bottom of the letters thus inverted, wherein a small groove is formed, and being now completely dressed and adjusted, they are fit for the printer's use.

After this short view of the letter-founder's art, the reader may naturally expect some account of the method of printing. The letters then, being cast and finished as above described, are distributed, each kind by itself, into wooden cases, which are divided into a proper number of little cells or boxes of different sizes. These cases are placed on a frame somewhat sloping, in the manner of a reading desk, that the workman may reach the upper boxes the better, and be in less danger of mixing the letters by stretching his arm over them. The compositor, having a leaf of copy lying before him, stands against the middle of the case, holding in one hand an iron instrument called a composing-stick, and with the other he takes the letters, figures, or points, out of the boxes, ranges them in the composing-stick on a slip of brass called a rule, and putting spaces between the words, he forms one line after another *the stick is* full. He then empties the lines a wooden instrument called a galley, like to

stick again, empties as before, and so on till he ha finished a page; which he ties round with a smal packthread, sets it by, composes another, and thus proceeds, till the number of pages to be printed on one sheet be completed. This done, he carries them to a smooth hard stone, placed horizontally like a table, on which he ranges them in due order and distance, puts round them a set of furniture, consisting of pieces of wood of different dimensions, unties them, and at last fastens or locks them up in an iron frame called a chase, so that the whole may be lifted up from the stone, as if it were one solid piece of metal. In this state the pages, whether two, four, eight, twelve, or whatever number are to be printed on one side of the sheet, are called a form; and the corresponding pages, to be printed on the other side, are fixed in another chase, in the same manner and at the same distance, so as to fall exactly on the back of each other. The two forms being thus imposed, (as they term it) one sheet is printed, which is carefully read over, and the faults occasioned by the compositor's inattention, or the casual misplacing of the letters in the boxes, are marked in the margin. In order to correct these mistakes, the compositor lays the forms upon the stone, unlocks them, and with a sharp bodkin picks out the wrong letters, puts others in their room, and makes all the necessary alterations. After this the sheet usually undergoes a second correction, and is then committed to press.

The printing-press is a very complex machine, which it is not easy to form an idea of by a mere description. Its two principal parts, each of which is *composed of* several others, are the body and the *carriage*. The body consists of two

strong cheeks placed perpendicularly,
gether at top by a cross piece of wood
cap. A little below is another piece
head, which is moveable, being sustain
iron pins or long bolts that pass throug
and in the head is fixed a brass nut, h
male screw or worm, which receive
screw of the spindle. Through an e
made in the spindle is rivetted an ir
which the press is wrought; and the
which is tapering and pointed with s
closed in a square wooden frame calle
having two cross planks called shelve
steady. The point of the spindle wor
fixed in a brass pan supplied with oil
pan is fixed to an iron plate let into
the platten, which is a square smoot
wood, hanging horizontally, whereb
pression is made. Underneath all, li
piece called the winter, which bears th
and sustains the effort of the press be
head does above, each giving way
one upwards, the other downwards, to
pull the easier —On the carriage are
long iron bars or ribs, faced with steel
plank, sustained by the carriage, are
pieces called cramp-irons, equally tem
the ribs, on which they slide when
turned in or out. Upon the plank i
frame or coffin, containing a hard pol
for the form to lie on; and underne
riage is fixed a small piece of iron call
with a double wheel in the middle, r
run leather girts, that are nailed to
*the plank*: and by the means of a
*ance at the* hither end of the spit, t

s the plank in and out at pleasure. Oppo-
to the body of the press are the tympans, be-
two skins of parchment pasted on wooden
es, one so small as to lie within the other.
largest or outward tympan is fastened to the
n by iron joints, and between both are plac-
blankets, which soften the impression of the
ten on the surface of the letters, and render
ore equable. To the top of this outward
pan is fixed by joints a thin frame of iron
ed a frisket, which is also covered with paper
archment, so far as is necessary to keep the
gin of the sheet clean,-and no farther.—In
king at press two men are generally employed,
of whom applies the ink upon the form, by
ing it over with two balls stuffed with wool,
nailed to a kind of wooden tunnels called
stocks; and the other lays the sheet on the
r tympan, turns down the frisket and tympan
the form, which he runs in under the platten,
means of the spit-handle above-mentioned,
s two pulls with the bar to make the impres-
, and then turning the same handle the con-
r way he brings back the form, lifts up the
pan and frisket, and takes off the printed
t. The form is then beat over again with
ink-balls, another sheet laid upon the tympan,
printed in the same manner as before; and so
workmen proceed till they have wrought off
number of sheets required. This form being
taken off the press, the corresponding one is
on, and the sheets printed on the other side,
h renders them complete. To get the ink off
orms, they are washed with a strong lye; and
the compositor, as he finds occasion, distri-
*the pages*, i. e. replaces the letters in their

proper boxes, to be used again in th
sheets.—All this is performed, both on
of the compositor and the press-man, v
gree of expedition and address that i
curious and interesting.

The invention of the rolling-press, f
off prints from copper-plates engraven
is commonly ascribed to Lipsius; but i
to be earlier than his time, from a prin
in the Bodleian library, dated 1481, v
print of the arms of the see of Wurtzbur
many, and those of the bishop, evide
off by the rolling-press, as the impress
plate and other circumstances leave no
doubt. The discovery of the art of en
indeed said to be as ancient as the year
ascribed to Finiguerra, a goldsmith of
but nothing considerable was done in tha
some years afterwards by Martin of
and then by Albert Durer and Lucas,
ceeded in it to admiration. About the
the method of etching was discovered
of eating the strokes or lines in the co
aqua fortis, instead of cutting them v
or graver.—As to the structure of th
press, it is much more simple than th
printing-press and we need only in
reader, that the impression is made by p
plate, covered with the paper and blan
tween two wooden cylinders or rollers
machine derives its name.

origin of printing, an art calc
otion of knowledge and gen
nd, is generally referred to
are they likewise supposed to l
ose destructive inventions of

powder. The discovery, indeed, like many ers, seems to have been casual, and, accord- to Polydore Virgil, the name of the inventor ot known. Thevet says the person was a nk of Friburg, whose name was Anelzen; other authors, with more probability, ascribe to Barholdus Schwartz, a friar, who in king chemical experiments, mixed some salt- re and brimstone with other ingredients, and them upon the fire in a crucible, into which a rk happening to get, the pot suddenly burst h great noise and violence*. This unexpect- event surprised him at first; but, repeating the eriment, and finding it constant, he set himself vork to improve it; to which purpose he caused iron tube to be made, with a small hole at end; and putting in some of his new compo- n, together with some little stones, he set fire t, and found it answer his expectations, by pe- ating all before it. This Schwartz (say they) ght the use of gun-powder to the Venetians, first employed it in their war with the Geno- in 1380: but the invention is undoubtedly of arlier date; for we read, that when Alphonsus, of Castile, besieged the Moors in 1343, they harged a sort of iron mortars, which made a e like thunder: and this is confirmed by what Pedro, bishop of Leon, relates in his chroni- of king Alphonsus, who reduced Toledo, ely, that in a sea-fight between the king of

*Polydore Virgil relates the story somewhat differently, viz. that the ingredients were put into a mortar covered with a stone, and the man striking fire near it with a flint and steel, a spark accidentally flew in, whereby the composition was inflamed, and the stone blown up from the mortar.

Tunis and the Moorish king of Seville, the Tunisians made use of iron tuns or barrels, from whence they discharged thunderbolts of fire. Add to this what Du Cange tells us, that the registers of the chamber of accounts in France make mention of gun-powder as early as the year 1338. But after all, there is sufficient reason to think, that the celebrated friar Bacon understood the composition of gun-powder long before Schwartz was born, or any mention was made of its being used in war.

Gun-powder is a composition of salt-petre, sulphur and charcoal, mixed together and formed into little grains, which easily takes fire, and is rarefied or expanded with surprising vehemence. Writers vary with respect to the proportions of the three ingredients, but as to the process there is little difference. All the ingredients are first finely powdered, then moistened with water, spirit of wine, or vinegar, and pounded together in a mortar for twenty-four hours; care being taken to wet the mass from time to time, to prevent its taking fire. It is then formed into balls about the size of an egg, which are put into a sieve with a bottom of thick parchment full of round holes; and by means of a wooden ball rolled about the sieve along with them, they are broken in pieces, and forced through the little holes in grains or globules, which being dried the powder is complete. To make large quantities mills have been invented, by which more work is done in one day than a man can do in a hundred.

The effect of gun-powder may be easily accounted for, if we consider the charcoal it contains as fire like tinder, by which means the sulphur and saltpetre break into flame, and the latter

s itself to a prodigious degree, even so as to up (according to computation) above ten and times the space it possessed before. Sir

Newton thus explains the matter:—the oal and sulphur easily take fire, and kindle itre; and the spirit of the nitre being thereby ed into vapour, rushes out with an explosion, like the vapour of water out of an Æolipile. sulphur also, being volatile, is converted into ur, whose acidity causes a fermentation, by h the heat is augmented, and the explosion ered more quick and vehement. The ex- on of gun-powder, therefore, arises from the nt action, whereby the whole mixture is rare- into vapour, which appears in the form of e. M. de la Hire ascribes all the force and t of gun-powder to the spring or elasticity of ir enclosed in the several grains, and in the in- ils or spaces between them. According to the powder being kindled, gives motion to prings of the numerous little particles of air; h is all the fire serves to do, the subsequent ts being produced entirely by the air.

ne invention of this destructive powder was rally followed by that of guns, cannon, mor- and other instruments used in the modern art ar. The first cannons were called bombar- from bombus, by reason of their noise; and word bomb had undoubtedly the same deriva-

These military engines seem to have had origin before the middle of the fourteenth cen- ; for, besides the testimonies already men- ed, historians inform us, that at the battle of sy, in 1346, there were five or six pieces of non in the English army, with which the ch were intimidated, being the first time

optics and astronomy. The use of the clepsydra is also very ancient, which was a contrivance to measure time by the fall of a certain quantity of water, as we still do by the running of sand out of one part of an hour-glass into the other. The invention of clocks with wheels, springs, &c. is of a more modern date, being referred to Pacificus, archdeacon of Verona, who lived in the ninth century; though others ascribe it to Boethius, about the year 510. We are certain, however, that the invention of the pendulum-clock, whereby the measure of time is reduced to the greatest exactness possible, is owing to the happy industry of the last age, the honour of it being disputed between Huygens and Galileo. The former, who published a treatise on the subject, declares that he first put it in practice in the year 1657; but Becher argues warmly on behalf of Galileo, by whose direction, he says, the first pendulum-clock was made at Florence, and a pattern brought into Holland. This however is certain, that the invention never flourished till it came into the hands of Huygens, who insists, that if Galileo ever thought of such a thing, he never brought it to any degree of perfection. The first clock of this kind made in England, was about the year 1662, by M. Fromantil, a Dutchman.

The invention of spring or pocket watches was likewise about the middle of the seventeenth century, and the honour of it lies between Dr. Hooke and M. Huygens, the English ascribing it to the former, and foreigners to the latter. Dr. Derham is a strenuous advocate for Dr. Hook, and tells us that he contrived various ways of regulating watches: of which one was a loadstone; another is by a slender straight spring, one end of

played backwards and forwards with the balance, so that the balance was to the spring as the bob to a pendulum, and the spring as the rod; a third method was by two balances, some of which were made with a spiral spring for a regulator, and others without. One of these watches, with a double balance was made by Mr. Tompion in 1675, and presented to king Charles II. and the invention quickly getting into repute, both at home and abroad, two of them were sent for by the Dauphin of France. Soon after this, M. Huygens's watch with a spiral spring appeared in England, and great matters were expected from it, as if it would serve to discover the longitude. This watch agreed with Dr. Hook's in the application of the spring to the balance, but the pulses of M. Huygens's were much slower, and the balance, instead of turning once round as Dr. Hooke's, turned several times every vibration. Huygens invented several other kinds of watches, some without any string or chain, to which in particular he gave the name of pendulum watches.

Repeating clocks and watches, are undeniably the invention of Mr. Barlow, who first put the contrivance in practice in clocks, about the year 1676; but the application of it to pocket-watches was not known till the reign of James II. when Mr. Barlow solicited a patent to secure his invention. This induced Mr. Quare to put in execution a similar contrivance; and as he endeavoured to prevent Mr. Barlow's obtaining a patent, a watch of each kind was shown before the king and council, and upon trial the preference was given to Mr. Quare's. But those inventions were far surpassed, in 1765, by Mr. Harrison's time-piece for ascertaining the longitude at sea; and for which he received the [illegible] remuneration of 18,750l. Upon the whole, we

bserve, without derogating from the honour any other nation, that as watches had their se in England, so there they have arrived at greatest perfection.

ongst the numerous inventions of the Ger- we must notice that noble instrument the mp, to which the present age is indebted for ny fine discoveries, and which is ascribed to de Guerick, a consul or burgomaster of ebourg, who exhibited his first experiments the emperor and the states of Germany, tisbon, in the year 1654. Some persons, d, have ascribed the invention to the honour- Mr. Boyle, and the engine has obtained the of machina Boyleana; but this is rather on nt of the improvements made in it, or the is experiments it was applied to, by that philosopher: for though he had actually some attempts of this nature before he any thing of what was done in Germany, e ingenuously confesses de Guerick to have beforehand with him, and that it was the nation he afterwards received from a book shed by Schottus, containing an account of uerick's experiments, which enabled him to his design to maturity. This machine has of late years much improved, and seems o be brought to its utmost perfection.

e use and effect of the air-pump is to ex- the air out of any proper vessel, and thereby what is popularly called a vacuum, which lity is only such a degree of rarefaction as is ient to suspend the ordinary effects of the at- here. Hence therefore we learn, in some ure, what our earth would be without the *of air which* surrounds it, and how indispen-

sibly necessary it is to the life, generation, a
trition both of animals and vegetables, and
rious other purposes. The principle on
this machine is founded is the elasticity or
of the air; and the basis or essential part o
metalline tube, answering to the barrel of
mon pump or syringe, having a valve at
tom opening upwards, and a moveable p
embolus, answering to the sucker of a pum
nished likewise with a valve opening up
the whole properly fitted to a vessel as a r
whence the air is to be exhausted. The othe
chiefly respecting conveniency, have been
fied and improved from time to time; and
larly Mr. Hawksbee, by adding a secon
and piston to the former, to rise as the ot
and fall as it rises, has greatly facilitated th
ing of the engine. To this gentleman
indebted for the structure of the ai
now in common use; but Mr. Martin co
one of a different form, which he calle
able air-pump, being so constructed
might, together with its receivers, be cont
a box of a small size, and sold at a m
price.

The reader must observe, as we have
hinted, that an absolute vacuum cannot b
ed by the air-pump, i. e. all the air cannot

y this means a vast number of curious expe-
ts have been made, which have thrown
light upon the secrets of nature, and of
we shall mention a few of the most remark-
for the entertainment of those who are unac-
ted with such phænomena.

st then, to demonstrate the spring of the air,
ottle whose mouth is securely sealed, so that
can escape from within, be placed under a
ver, and the air exhausted from the surface
e bottle, the spring of the included air will
it to pieces. 2. If a bladder be almost emp-
f air, and tied very tight, the air within will
nd itself *in vacuo*, so as to make the bladder
ar full blown. 3. By making a little hole in
mall end of a new-laid egg, and exhausting
eceiver, the bubble of air contained between
hell and the skin at the great end will ex-
itself, so as to force the white and yolk of
gg through the hole; and if half the shell of
gg thus emptied be taken off, the said bubble
raise up the skin, so as to resemble an entire
4. A shrivelled apple will become smooth
plump under the exhausted receiver, by the
nsion of the air contained in its substance.
ishes are made so light by increasing the
g of the air in their bladders, upon exhausting
eceiver, that they rise to the top of the water,
annot again descend to the bottom. 6. Water
d as hot as the finger can well bear it, will
vehemently under the exhausted receiver;
upon letting the air in again, the agitation
s. 7. Fresh small-beer placed *in vacuo* rises
froth, dies, and loses all its taste. 8. Vege-
substances put in water under the receiver
*great quantities* of air from all parts of their

surface. 9. The weight or pressure of the air is shown by exhausting two hollow brass hemispheres, which are then compressed together by the external air, so as to require a force to pull them asunder equal to one hundred and eighty-eight pounds, if the diameter of the hemispheres be four inches. 10. A person placing his hand on the top of an open receiver, will feel a very sensible pressure of the air on the back of his hand, in proportion as the receiver is exhausted; and the spring of the air contained in the flesh exerting itself at the same time, the inside of his hand swells downwards into the receiver. 11. If the air be exhausted from a thin bottle placed under a receiver, and then suddenly let in again, its weight will instantly crush the bottle to pieces. 12. If a piece of wood be cemented in the lower part of the neck of an open receiver, and mercury poured upon it, after two or three exhaustions the pressure of the external air will be so great on the mercury as to cause it to descend through the pores of the wood in form of a beautiful shower, which will shine in a dark room. 13. The lightest and heaviest bodies descend with equal velocity *in vacuo*; thus a guinea and a feather let fall from the top o a tall exhausted receiver, arrive at the botton both together. 14. It appears that air is necessa ry to the existence of fire and flame; for a piec of burning charcoal, or a lighted candle, is soo extinguished in the exhausted receiver: neithe will gun-powder flash or make any explosion, bu melt and die away. 15. Air is likewise prove to be the medium of sounds; for a bell run *vacuo* is not heard; but as the air is admitte *the* receiver, the sound increases in propo

16. That fermentation and putrefactio

depend on the air, is shown by preserving fruits in their native bloom and perfection through the winter in an exhausted glass: and eggs, which in the air soon grow stale and putrid, retain their goodness a long time *in vacuo*. 17. How necessary air is to vegetation appears from hence, that seed sown in earth kept under an exhausted receiver will not grow at all *. 18. Air is likewise absolutely necessary to most sorts of animals, though some will live a long time *in vacuo*, whilst others expire presently.

Dr. Derham observed, from various experiments, that animals whose hearts have two ventricles and no foramen ovale, as birds, dogs, cats, mice, &c. die in less than half a minute under a small exhausted receiver. A mole died in one minute: a bat remained four minutes and a half, and revived upon re-admitting the air; but in twenty minutes he was dead beyond recovery. Wasps, bees, grasshoppers, and other insects, appeared dead in two minutes; but revived in the open air, after they had lain twenty-four hours *in vacuo*. Snails continued twenty-four hours under the exhausted receiver, and seemed not much affected. Frogs and toads bear the pump a long time, especially the former; one of which recovered in the open air, after remaining eleven

* A trial of this was made by sowing lettuce-seed upon some earth in the open air, and some of the same seed, at the same time, upon other earth in the glass receiver of an air-pump, which was afterwards exhausted. The seed exposed to the air grew up an inch and a half within eight days, but that in the exhausted receiver did not appear. The air being then re-admitted into the receiver, in the space of a week the seed sprung to the height of two or three inches.

hours in the receiver.—Fish are not easily killed by the air-pump. At first they appear greatly disturbed, swoln and sickish; but Mr. Hawksbee says, he has kept them a week and found them as lively as those which had been kept as long in the air.—Slow-worms, according to Mr. Boyle, will live two or three days *in vacuo*, and leeches five or six.

The same Otto de Guerick, who invented the air-pump, contrived a new sort of air-gun, which discharged shot by the rarefaction of the air, whereas the common air-guns produce their effects by its compression. Dr. Papin improved upon de Guerick's invention, and experiments were made before the Royal Society to try the force of his machine; which was very considerable, but not equal to those whose structure is founded on the compression of the air. Of these the most common and portable kind consists of two barrels, one of a small bore, into which the bullet is rammed as in other guns, and another on the outside, so large as to leave a space between them, wherein the air is to be enclosed. Into this cavity the air is injected through a valve, by a syringe fixed in the stock of the gun, and the discharge is made by drawing a trigger, which opens another valve, whereupon the compressed air rushes through a hole into the inner barrel, and expels the bullet with great violence. There is also a contrivance in the lock, that either the whole charge of air may be spent at one explosion, or only part of it, and the rest reserved for fresh bullets; but the force is much greater, if all the air be discharged upon a single bullet.—The magazine air-gun is so contrived, that ten bullets, lodged in a cavity near the place of discharge, may be drawn one

e into the shooting barrel, and successively led in a very expeditious manner. Dr. t observes that a gunsmith at Basil, showed me of these machines, and pretended the tion was his own, which must be acknowl to be curious; but as the discharge of air- is attended with an inconsiderable report ared to that of fire-arms, nor is there any like that of gunpowder to discover from hand the shot comes, it seems the interest ankind to forbid the use of instruments so nient for assassination.

the Germans have been famous for their vements in the art of chemistry, it appears ible to introduce some observations on that t. Chemistry is the art of separating by of fire the several substances of which l bodies consist, and of composing new bo- y the mixture of different substances or in- nts. If we endeavour to find the origin art, we must look back into the antediluvian , where it was practised, as some think, am the son of Noah; but the invention is commonly ascribed to Tubal-Cain, who first red brass and iron for the use of man, which uld not have done without a competent dge of chemistry. Profane authors refer Vulcan; and several learned men have it appear very probable, that Tubal-Cain lcan were the same, which seems to be med by the great resemblance between names. The invention of chemistry is by referred to Hermes Trismegistus, an an- ing of Egypt, from whom it has obtained me of the hermetic art. From the Ara- by whom the art was esteemed and prac-

tised, it seems to have had the name of a
but these people rendered it ridiculous
extravagant superstitious reasonings, a
pretended transmutation of metals: and
must be observed that chemistry at first h
metals for its object, whereas the boun
have been much enlarged in later ages, be
tended to the animal and vegetable, as
the mineral kingdoms; and the moderns h
plied it with great success to the prepar
medicines.

At the declension of the eastern empi
mistry shared the common fate of the ot
and lay buried and neglected till the
friar Bacon, by whom it was in some
retrieved. He was followed by Raymon
Basil Valentine, Paracelsus, Van Helmo
others, who spread the art in Spain, It
Germany; and the two last carried it
a length, as to render medicine almost
chemical. Lemery a Frenchman, Hon
German, and our ingenious countryman M
dispersed the darkness of the art, reduci
simple and true ideas, and abolishing th
less and impracticable circumstances, wit
some of their predecessors had designedly
its operations. But of all the moderns no
made greater improvements in chemis

ave employed much time and pains in
f what is popularly called the philosopher's
r a preparation capable of transmuting im-
metals, as tin, lead and copper, into gold
er. Another object of their studies has
find out an universal medicine adequate
seases, sometimes called by way of emi-
he grand elixir; but most alchymists are
ion that these two things coincide, so that
ill make gold will also cure all distempers.
king of gold has been attempted three dif-
ways, viz. first by separation; for every
et known contains some gold, but in most
the quantity is so trifling that it will not
he expence. The second is by matura-
ripening, which relates only to quick-
for the alchymists hold mercury to be
s and mother of all metals, that its weight
e increased by purging it from all hetero-
bodies, and that by subtilizing, purifying
esting it, with much labour and long ope-
it might be converted into pure gold.
is the inimitable character of gold; but
e impurities of mercury be entirely eradi-
would, say the alchymists, be as heavy
itself; and what is as heavy as gold is
at least might be made such without any
y. The third method is that of transmuta-
a mode of turning all metals into gold, by
them in the fire, and casting into the fused
a small quantity of a certain preparation
hich the impure parts are immediately vo-
, burnt and carried off, and the remaining
anged into pure gold. That which works
nge in the baser metals is what is meant
*hilosopher's* stone, and is the grand secret
my yet undiscovered, though severa

have pretended to be masters of it, w
racity on other occasions is not to be ques

The possibility of this transmutation, c
perfection of imperfect metals, is a poi
disputed among philosophers, the alchym
nuously maintaining the affirmative, on
tion that all metals would equally arrive a
tion, as being composed of the same matte
not for the impurity of their matrices, c
places where they are formed by natu
that is required, say they, in the business
mutation, is to do that by art, which nat
in many years or ages. But how is
effected? How is so impure a metal, as
instance, to be exalted into gold? Why i
sider the weight of lead, there is nothing
so heavy, gold and mercury only excepted
it is plain there is something in lead th
very near to gold; but there is also son
geneous matter different both from gold
cury. Now if we had any body which
agitate the parts of lead as to purge o
is not pure mercury, and had some sulp
the mercury, would not the mass be
into gold? If eleven ounces of lead be
by the fire, and so purified as to come tc
we shall then have changed it into mercu
is specifically heavier than lead in th

netic virtue to the mercurial body of any metal it meets with; volatilizes and throws off all its impurities; and leaves nothing but a mass of pure gold behind.

This is the grand secret, which alchymists of various nations, encouraged by kings, princes, and nobles, have been in diligent search of for many ages. Vast sums of money have been advanced, and innumerable experiments have been tried for this purpose; but all the learning, labour and expence employed about it have not yet been able to make the expected discovery. It is therefore surprising, after so many books written, so many questions debated, and so many operations performed in vain, relating to the art of making gold, that any persons should still pursue the same romantic scheme which generally ends in the ruin of the projectors themselves, and frequently of some wealthy persons who are infatuated enough to believe them, and risque their fortunes in an undertaking so extravagant.

On this subject an ingenious writer has observed that it is folly to attempt the making of gold, without knowing the nature and essence of those principles which compose it; nay, were we well acquainted with them as we are now ignorant of them, the manner of uniting and combining those principles together would be an operation surpassing our skill. Nor is it without wise and good reasons, that our Creator has concealed from us the essence of metals, and other bodies, judging it sufficient for us to know their uses; for if he had given us a perfect knowledge of their essence, it would have made us inattentive to every thing else, and instead of applying gold to those purposes, for which it was created, we should have busied ourselves in making it, and there-

able us to make wine, by mixing and pro
ing the principles of which it is compose
out waiting the return of the vintage: w
think it beneath us to stand indebted to t
mon course and order of nature, and th
methods of husbandry and agriculture, fo
ply of our wants; being able to furnish o
in a shorter way with all the necessaries a
veniences of life, even those which are
productions of different countries. W
thus perfectly skilled in all the secrets of
and masters of all its powers, commerc
soon be annihilated, the bonds of societ
be broken, and the inhabitants of the wh
would become recluse philosophers, ha
things within themselves, and independ
of another: all intercourse of friendship
tual kindness would consequently cease, n
ing no longer occasion for any exchange
[illegible] and good offices: nay, there woul

To what we have said on some of the most ingenious and useful inventions that are generally supposed to have had their rise in Germany, we shall add a brief account of the trade and manufactures of that country. Several cities are famous for making curious toys in wood, ivory, and all sorts of metal; and Nuremberg in particular has carried on a great trade in such commodities, but it is now much decayed. Augsburg is likewise remarkable for its goldsmith's wares, clocks, and a variety of pretty toys, which are sent into Poland and the north of Europe: but in most works of this nature the English artisans have of late years excelled, and served foreign countries with their manufactures, to the great detriment both of Augsburg and Nuremberg, which had been in possession of this trade for several centuries. A great number of hands are employed at Ulm in dressing leather, and in the manufactures of linen, cotton, and fustians, besides their iron-wares and clock-work; by which it is become one of the richest cities in Germany. But the imperial city of Hamburgh, with respect to commerce, eclipses all the rest, and may be justly stiled the port of Germany, possessing all possible advantages for trade, both foreign and domestic. The Elbe, on which it stands, and the many other navigable rivers that fall into it, after a course through some of the richest and most trading parts of the empire, furnish it with all the products and manufactures of Austria, Bohemia, and Upper and Lower Saxony; by the Havel and Sprehe it has a trade with the electorate of Brandenburgh; and by a canal from the Sprehe to the Oder its commerce is extended into Silesia, Moravia and Poland. There is likewise a channel opened from the Elbe

to the Trave, for the sake of communicati
Lubeck, and the Baltic sea, without the
and hazard of sailing round the coast of
and the obstructions of the toll and other di
of the Sound.—The chief commodities e
from Hamburgh are linen-yarn, and li
several sorts and countries, particularly
diapers, the lawns of Misnia and Lusati
lasses, and other strong linen from vario
of Germany; wire of iron, brass, an
chiefly from Upper Saxony; and great nu
kid-skins from Brandenburg; besides pip
wainscot-boards, oak-plank, oil, and wh
of which last articles (though they have
share in the Greenland whale fishery) t
obliged to purchase considerable quantiti
the Dutch, more than their ships can supp
with, by reason of their vast trade up t
into Germany.

Of the numerous commodities the Hamb
import from abroad, the woollen manufac
England are the chief; of which those
nually from Yorkshire, and generally shi
Hull, are said to amount to above one
thousand pounds. The single article o
ings comes to twenty thousand pounds at le
in short, all the English goods vended at Ha
amount to several hundred thousand pou
annum. These goods are sent, by the
other navigable rivers, to innumerable mark
northern parts of the empire, and par
vast quantities are sold at the fairs of
which are resorted to by merchants fro
tries in Europe. Several manufactor
ise been erected at Hamburgh, for th
damasks, brocades, velvets, &c.

of fine loaf-sugar, and the printing of calicoes linens; all which employ abundance of hands, are carried on with equal industry and suc-. In a word, from these and other branches ts commerce that might be mentioned, Hamgh is become a rich and powerful city.

The city of Bremen, situated on the banks of Weser, carries on a very respectable comce; and is reckoned inferior to none but Hamgh in the whole empire. The Bremeners send England several sorts of German linen, and off large quantities of our woollen manufacs, which they disperse though the whole le of Westphalia. They likewise send ships to nce, Spain, Portugal, and Italy; and also to whale-fishery of Greenland. They have a siderable inland trade with the neighbouring s of Germany, whither they send beer, printed coes, loaf sugar, &c. Their other commodities minerals, timber, cattle, and leather.

The Prussian manufactures are not inconsider-: they consist of glass, iron-work, paper, gunder, cloth, camlet, linen, silk stockings, and r articles. The inhabitants export a consider- quantity of naval stores, amber, linseed, p-seed, oatmeal, fish, tallow, mead, caviar, &c. which five hundred vessels are annually n at Koningsberg.

## CHAP. VI.

### OF SWITZERLAND, AND THE COUNTRY OF THE GRISONS.

*Springs, Lakes, Cataracts, Caves, &c.*

THE city of Baden, in Switzerland, has been long celebrated on account of its hot baths, and to these, in a great measure, may be attributed its present flourishing condition. These baths are situated on each side the river Limmat, about a quarter of a league below the city; but their water is brought into several inns and private houses, by means of pipes. There are likewise public baths in the middle of the town, from a spring which rises in the street, where indigent patients may bathe gratis; but these persons are consequently exposed to the rude gaze of passengers. The heat of some of the springs is so great as to scald a person's hand; and they are all impregnated with sulphur, alum, and nitre. They may be used, however, for drinking as well as bathing; and are said to cure asthmas, head-achs, vertigos, and all diseases of the breast and bowels.

Leuk, in the Valais, is famous for its hot medicinal springs, and is much frequented by invalids, who either bathe, or drink the waters, according to their various cases. These springs are of different warmths; but, according to the most accurate experiments, the mercury in Fahrenheit's

ıermometer stood at 115, when plunged into ıe principal source. In gout, rheumatisms, and utaneous disorders, these waters are nearly of he same efficacy as those of Bath in Somersethire.

Formerly the accommodations for company were olerably good; but in the year 1719, an avaanche fell with such impetuosity from a neighbouring glacier as to overwhelm the greatest part of he baths, and to bury many of the inhabitants; nd since that time no farther attention has been aid to the baths than barely to render them useul to the sick. A gentleman of the Valais informed Mr. Coxe, that it had frequently been in ontemplation to erect buildings for the comfortble reception of strangers; but that some persons f authority opposed all improvements, on the dea that a concourse of strangers would only ntroduce luxury among the inhabitants, and insensibly destroy that simplicity of manners, which ow constitutes their pride and happiness.

The baths of Alvenew, in the country of the risons, are sulphureous, and both in taste and mell resemble those of Harrowgate. They are omantically situated by the famous torrent Albula, t the foot of the majestic Alps.

The springs of Pfeffers, in the same country, ave long been celebrated for curing the gout, heumatism, and cutaneous disorders; and are aid to be impregnated with a small quantity of olatile alkali and iron, but contain no sulphur. The accommodations at this place were formerly ndifferent, and the descent into the baths was ttended with great inconvenience; but now the ater is conveyed by pipes into commodious

baths, and the house is not only convenient bu elegant.

Mr. Coxe, being desirous of visiting the warm source, crossed the Tamina, and entered a chasm in a limestone rock, from ten to twenty feet broad and from two to three hundred feet high, some parts of which were open at the top, whilst other scarcely admitted a single ray of light. The passage along this chasm was really dreadful, and quarter of an hour elapsed before our author reached the warm springs, which gush profusely from the crevices of the rock. In this tremendous situation the baths were formerly constructed and the houses for the reception of patients were built on a platform, under the impending craggs.

The salt-works of Bevieux claim particular attention, and are generally visited by travellers. The following account of them is taken from Mr Coxe's Travels in Switzerland.—"On our arrival at the salt springs we equipped ourselves in a proper dress, and went into the mountain, about three thousand feet almost horizontally: the passage is about six feet high, and four broad, and is hewn out of a black rock veined with white gypsum.

"The salt is obtained from springs found within a solid rock, which has been perforated at a great expence. The strongest brine yields about twenty-eight pounds of salt per hundred weight; but in general the produce is much less. Near these springs are several warm sources strongly impregnated with sulphur, some of which also contain a mixture of salt, and will flame, if a lighted candle be put into the pipe through which they flow."

After proceeding in this subterraneous passage about three quarters of a mile, Mr. Coxe arrived

d a large wheel of thirty-five feet diameter, which erves to raise the brine from the depth of more an seventy feet. From this place is a shaft ree hundred feet high, for the purpose of admitng fresh air.

Two reservoirs are hollowed in the solid ck, for holding the brine, one of which is a undred and sixty feet square, and nine deep. he brine deposited in these reservoirs is conveyd by pipes to another place, a league distant, here the salt is extracted.

At Plinania, in the country of the Grisons, is a ngular fountain, which bursts from a rock, and lls in natural cascades into the lake of Como. his spring ebbs and flows thrice every day, with rprising regularity, except in stormy weather. rom being almost dry, it gradually rises till it rms a considerable stream, and then as gradually bsides, till the period of its swell returns. Pliny's scription of its ebb and flow is written upon the all of an adjoining apartment.

In the vicinity of Rosiniere is a curious spring, hich rises in the centre of a natural bason, about velve feet square; the force that acts upon it must rtainly be prodigious, for after a heavy shower rain, it throws up a column of wate., as thick a man's thigh, nearly a foot above its surface. temperature is invariable, its surface clear as ystal, and its depth unfathomable.—Many perns suppose it to be the end of some subterranes lake, that has here found an issue for its wa-s.

The Lake of Geneva, anciently called Lema-s, is in the shape of a crescent, along the con-ve side of which Mr. Coxe travelled fifty-four es. Switzerland forms the concave, and the

of Mont Blanc (formerly Savoy) the
rt; its greatest breadth being about
es. The country on the side of Mont
ugged and mountainous; but from Ge-
ne environs of Lausanne, it slopes to the
the lake, and is crowned with an exube-
tation. The greatest depth of this lake, as
M. de Luc, is about nine hundred and
t. The Rhone enters at one point of the
t, and issues out at the other, but with this
able difference, that whereas it comes in
and turbid, it always goes out so clear that
the bridge of Geneva, where the water is
ally twenty-five feet deep, the smallest peb-
may be distinctly perceived at the bottom.
entering this lake, the Rhone loses its usual
lity, but some sensible motions may be ob-
ed, by which its current is plainly distinguish-
and soon after it has quitted the lake, it re-
nes its wonted course, which gradually becomes
re impetuous.

Notwithstanding the natural rapidity of th
one, however, its course has been sometim
pped by a strong westerly wind, such as ha
ned in the winter of 1645, which not only
ofed the houses at Geneva, but laid bare
nnel of the river, above the bridge, for
ace of an hour, after which it resumed its co
allasius relates, that a similar accident happ
Geneva when he was minister there, a s
st wind causing the Rhone to recoil in
e, and affording a dry passage for an hour
r. Another cause has also been known
rupt the course of this river; for in th
52 an adjacent river, called the Arva, sw
h a degree, that it not only overfl

but forced the Rhone back into the lake
irly fourteen hours.
lake of Geneva is always considerably high-
ummer than in winter; commonly begin-
increase about the end of January, and con-
to rise till July or August.—This circum-
is generally attributed to the melting of the
ınd ice from the neighbouring mountains;
eems highly probable, that there may be a
rence of other causes. In calm weather,
'en before sun-rise, the lake assumes a va-
f colours, curiously intermixed, which is
ed to proceed from the reflections of the
on the shore blending together on the
surface of the water.
are found here in great abundance, and it
rvable, that the different species seem to
antoned themselves, and divided the lake
them; trouts being only found in the cur-
the Rhone, carp near Vevay, &c. but such
ıs only resort hither occasionally, spread
lves over all parts indifferently. The trouts
ıere are extremely large, and the pikes
ɔen sometimes known to weigh upwards
teen pounds.
lake of Wallenstadt is about twelve miles
ıd two broad, and is environed by lofty
:cept toward the east and west. From the
'e of these two quarters a breeze generally
t different periods of the day, which faci-
the transportation of merchandise. The
of the lake affords a rich variety of beau-
l romantic views. On the side of Glarus
ıntains are chiefly cultivated and feathered
*es, while the Alps* behind are covered with
*now. On the* opposite side the rocks are

grotesque, craggy, and almost inaccessibl
even here are some cultivated spots, rec
by human industry from their original st
Numerous water-falls, occasioned by the n
of the snows, trickle down the sides of th
and enter the lake by different courses, an
different degrees of velocity.

The Lake of Lucerne may be justly
the finest body of water in Switzerland.
bounded, toward the town, by cultivatec
gradually sloping to the water, and con
by an enormous mass of steril rocks, whi
from the opposite bank. Mount Pilate al
boldly from the lake, and, according to th
putation of general Pfiffer, its elevation is
six thousand feet. Another branch of th
called that of Schweitz, is surrounded by
lofty mountains, some clothed to their s
with luxuriant vegetation, others craggy a
accessible; in one place forming vast
theatres of wood, in another, jutting into th
in stupendous promontories.

The lake of Wahlestatt, in the canton
ris, is completely environed with mountai
of which has an aperture pierced through
the top, called St. Martin's hole. Throu
hole the sky may be seen on a certain part
lake, and it is the only inlet of the sun-
upon a small village called Elm, for four
together, about the time of the equinox,
spring and autumn, when the solar rays ar
mitted upon this village, though St. Martii
as through a natural telescope.

The navigation of the Rhine is frequentl
*rupted by* cataracts, the most dangerous o
*are in* Switzerland, particularly one near

hausen, where the whole river rushes down a descent of seventy or eighty feet; and another at Lauffen, about a league distant, where the water is precipitated over the rocks with such astonishing impetuosity, that its noise may be heard, in a calm day, at the distance of twelve or fifteen miles. Here goods which have been put on shore at Shauffhausen, and forwarded by land, are taken in by other vessels, to proceed down the river.

The Reichenbach rises at the foot of the Wetterhorn, and rolls in numerous cataracts down the steep sides of Mount Sheidec, till it unites with the Aar at Meyringen. Its greatest elevation is about two hundred feet perpendicular; and its falls may be divided into three parts, each of which has its appropriate features of beauty and sublimity.

The Pisse Vache is another famous cataract, the characteristic beauty of which is, that it seems to burst from a cleft in the middle of the rock through pendant shrubs, and forms a perpendicular column of water, about two hundred feet high. As the volume is very ample, and the elevation not so considerable as to reduce it into spray, the effect is consequently extremely grand and interesting. Formerly travellers passed close to this cataract; but some years ago, part of the rock tumbled down, and totally obstructed the road, which is now carried over the middle of the valley.

At Lauterbruennen is a celebrated torrent called the fall of Staubbach, which rolls perpendicularly from so vast a height, as to resolve itself into fine spray, resembling a cloud of dust, and from this appearance it takes its name, which means a *spring of dust*. The greatest part of the water falls clear of the overhanging mountain during

its whole descent; but the remainde
about half way, against a projection of
and flies off with great violence. The
cular height is said to be about nine hu
thirty feet. When the sun shines in an
direction, a small rainbow is reflected t
bottom of the fall, which gradually dim
the spectator approaches.

On the west side of a lake near Wedd
is a cascade, which, bursting from su
trees, falls a few feet on the ridge of rock
precipitates itself in mid air for about
without touching the sides of the precipi
effect is peculiarly striking; nor can a
plative spectator sufficiently admire the
phitheatre of rock, the sun-beams play
falling waters, and the noise of the tor
trasted with the tranquil beauties of the
lake.

The cascade of Arpenas, in the neigh
of Magland, rushes from an impending r
a fall of three hundred feet perpendicular
vided into an almost imperceptible spray;
wards collecting itself, trickles down th
the mountains in a thousand little strea
Coxe observes, that this body of wate
more considerable than that of Staubb
that the fall appeared quite as high.

One of the most singular curiosities in
land is Mount Pilate, (in the vicinity of
formerly called Mons Pileatus, from it
being generally covered with a cloud
This word has been corrupted into Pi
many ridiculous stories have been inven
*count* for the name.

At the elevation of five thousand, fe

[redacted] of this mountain, is a deep cavern, hollowed in a black rock, where may be seen the collossal statue of a man, leaning his elbow on a pedestal, with one leg crossed over the other, and so regularly formed, that it appears to have been a work of human ingenuity; but by whom, or in what manner it could be placed in a situation which has hitherto proved inaccessible, it is difficult to conceive. About the beginning of the last century, a peasant, named Huber, attempted to descend into the cavern, by means of ropes let down from the top of the rock. —He succeeded so far as to gain a near view of the phænomenon, and was drawn up in safety, but on a second trial, whilst he was endeavouring to draw himself into the cavern by fixing a grapple to the statue, the cord unfortunately broke, and he was dashed to pieces.

In the year 1756, general Pfiffer and eight other persons made a trial to penetrate to this wonderful statue, by a small opening on the opposite side of the mountain, which was supposed to communicate with the cavern. They crept cautiously on their hands and knees, and winding in the bed of a small torrent, through several narrow passes, they at length discovered the light of the sun through a remote chasm; but as the distance appeared very considerable, and as the fall of a single stone might have precluded the possibility of a retreat, they deemed it expedient to desist, and returned without effecting their purpose.

About three miles from Fribourg is an hermitage, dedicated to Mary Magdalen, and situated among woods and rocks, in the prettiest solitude imaginable. It has been described by several

travellers, particularly M. Blainville and M
dison, who both saw it about the beginning
last century, when the hermit was still aliv
had wrought out of a rock a pretty chapel
an altar, sacristy, and steeple; also five
bers, a parlour, refectory, kitchen, cellar
other conveniencies. The funnel of his chi
which pierces from his kitchen to the top
rock, slanting all the way, is ninety feet hig
cost him so much toil, that he was a whol
about it, and often despaired of completi
design. The chapel is sixty-three feet in
thirty-six in breadth, and twenty-two in heig
sacristy, or vestry, is twenty-two feet squa
the height of the steeple seventy feet; the
ber between the chapel and the refectory is
forty feet long, the refectory itself is
one, and the cellar is twenty-five feet
and ten feet deep. But the hall, or parl
particularly admired, being twenty-eight
in length, twelve in breadth, and twenty
height, with four openings for windows
higher and wider than those of our best
At one end of this hall was the hermit's
with a small collection of books, and other
sities; and to add to the pleasantness of hi
tation, he had cut the side of the rock into
and having covered it with good mould, ha
ed a pretty garden, planted with several
fruit-trees, herbs, and flowers; and by fo
the veins of water, that dropped from
parts of the rock, he had made two or thr
cisterns, which supplied his table, and wate
little garden. This hermit, whose name w
*Ermé*, began his laborious undertaking
*thirty*, and said he was twenty-five
*pleting* it, having had no assistance

i except one servant. He intended to have
1 on his work still farther, but was drowned
)8, as he was crossing a neighbouring river
oat with some company that came to visit
His place is supplied by a priest, who sub-
y the generosity of strangers that come to see
ermitage, and he generally entertains his
:s with bread and wine, and a nosegay.

## ANIMALS.

SIDES many animals which are commonly
in the adjacent countries, Switzerland con-
he ibex, and some curious species of the fox
ne hare.

e ibex is mentioned by Buffon as being the
from which the common or domestic goat
lescended. It nearly resembles that animal
e formation of its body; but its knotty and
vated horns are considerably larger, and
times grow to the length of three feet. The
of this quadruped is small, the eyes large,
the hair rough. The top of the back is mark-
ith a black line, the legs are diversified with
: and white, the thighs and belly are of a de-
e fawn colour, and the other parts are of a
brown, mingled with hoary.

hese animals are extremely wild, strong, and
; and sometimes turn with such fury upon the
itious huntsmen, as to throw him headlong
n the eminence, unless he has time to elude
langer, by prostrating himself on the earth
ey have passed over him.

me *writers* have asserted, that if the ibex be

[redacted] for himself a convenient den, [redacted] under, hard ground, roots of &c. and is furnished with proper outlets to tate a sudden escape from dogs or other ene-s. This dexterity in constructing for himself habitation, is considered by some naturalists as lone sufficient to rank the fox among the higher rder of quadrupeds, since it implies no small degree of intelligence.

Of all animals the Fox has the most significant eye, by which is expressed every passion of fear, hatred, love, &c. He is sometimes remarkably playful; but like all savage creatures half reclaimed, he will, on the slightest provocation, bite even those with whom he is most familiar. He languishes when deprived of liberty, and if kept too long in a domestic state, he dies of chagrin. When abroad, he frequently amuses himself with his bushy tail, running for a considerable time in circles to catch it. During winter he makes a continual yelping; but in summer, when he sheds his coat, he is generally silent. Some variations may be seen in the colour of these animals in different countries; those of Switzerland are mostly white or yellow.

The Hare is too well known in Great Britain to require a particular description; but it appears that in Switzerland and other northern regions there is a species of this animal, called the varying Hare, which possesses some peculiarities.

This little animal has a remarkably soft fu which in summer is grey, with a slight mixture tawney; but which turns white previously to the falls of snow which would otherwise render particularly conspicuous to beasts of prey. ears are shorter, and the legs more slender

those of the common hare; the feet are likewise more closely and warmly furred. It appears from respectable authority, that if this animal be taken into a house, and even kept in warm apartments, it still changes its colour at the same periods that it does among its native mountains.

With respect to vegetables, Switzerland produces a numerous variety; but as they are all similar to those of the neighbouring countries, we cannot enumerate them in this place, without incurring the charge of needless repetition.

## ANTIQUITIES.

ABOUT five miles from Nyon, in the canton of Bern, are the ruins of a wall, built by Julius Cæsar to prevent the Swiss from entering into Gaul. It extended eighteen miles, from Mount Jura to the lake, according to Cæsar's own assertion, in the first book of his Commentaries. At Yverdun, in the same canton, have been found medals of all the Roman emperors, from Augustus to Julian the Apostate; and at Avenches may still be seen the remains of a magnificent amphitheatre, together with those of towers, walls, and other buildings.

** Baden, in the canton of the same name, is pillar, with a Roman inscription, in Trajan's famous causeway, which ext eighty miles through this country, ch some remains are still visible. At n the same canton, are the ruins of an rtress, supposed to have been one of the Drusus erected along the banks of the

Rhine. Here have been found several Roman coins; and at Wettingen an earthen pot was dug up, in 1633, full of silver medals of the Roman emperors, together with some silver vessels, which are supposed, from an inscription on the steeple of the abbey, to have been used in a temple dedicated to the goddess Isis.

In a chapel belonging to the church of Mortigny, in Valais, are three antique columns and a mosaic pavement, together with several Roman inscriptions. At Geneva is an ancient tower inscribed with the name of Julius Cæsar, by whom it was probably built; and in the lake at this place is a huge stone called Nitton, on which sacrifices were anciently offered to Neptune and other deities of the waters.

In the vicinity of Basle are the ruins of Auguast Rauricorum, formerly a large Roman town, but now dwindled away to a small village. Of its original magnificence nothing remains, except some marble columns, scattered fragments of pillars, and a circular range of walls on a rising ground, which probably formed the theatre. Here are also some ruins of the aqueducts which conveyed water to the town from a distance of twelve miles; and medals of the Roman emperors, from Augustus to Constantine, are frequently found in turning up the earth in this neighbourhood.

About two miles from Molleray is the celebrated pass of Pierre Pertius, a large arched aperture through a solid rock, about thirty feet long, forty-five broad, and thirty high in the lowest part. A Roman inscription over the arch is much defaced, and has exercised the ingenuity of several antiquarians: it seems, however, to imply, that a

road was formed through the mou
mus, a decemvir, during the reig
Aurelius and Verus. At the bott
the Birs bursts from the ground in
springs, and turns two mills withi
its principal source.

It appears that Oswald, one of
kings, is the titular saint of Zug, a
stands his statue with the following

*Sanctus Oswaldus, Rex Angliæ, Patron*

This Oswald was a king of N
in the seventh century, and was gr
for his chastity, and the fancied
formed; but by what means he be
honoured at Zug, it would be vain

In the neighbourhood of Lausan
mile stone inscribed with the na
Pius; and an altar of white marb
scription which proves it to have
the twentieth legion to the god Silv

The Julian columns, near St. M
circular shape, somewhat similar
stones, and are placed at the dista
from each other. Their height ab
is nearly four feet, and their circ
They have neither pedestal nor
flattish on the top, with a round h
dle, about six inches deep, and fo
Schewzer supposes these column
erected by Julius Cæsar, in order
mit of his conquests; and asser
*ulira*, and *Omitto Rhetos indomito*
them; but Mr. Coxe could
ace of any letters, thoug
h particular attention.

BUILDINGS.

THE great church at Bern, in the canton of the same name, is a very magnificent structure, and is reckoned a master piece of Gothic architecture. It has a fine lofty steeple, and is remarkable for having the largest bell in Switzerland, weighing upwards of ten tons. The great door is adorned with a representation of the parable of the wise and foolish virgins; and the paintings and sculptures which decorate the interior of the church are well executed.

The church of St. Urs, at Soleure, is a noble modern edifice, of whitish grey stone, which admits of an excellent polish. The lower part of the building is of the Corinthian and the upper of the Composite order; and the expence of its erection is estimated at eighty thousand pounds.

The cathedral church of Basle is an elegant Gothic structure; but strangely disfigured by a daubing of rose coloured paint, spread over the whole edifice. Here repose the bodies of several illustrious characters; and among the rest, the venerable remains of Erasmus are deposited under a marble tomb. The public library of Basle, though not very extensive, contains a valuable collection of curious manuscripts, and early printed books; and in an adjoining suit of rooms, are a cabinet of petrifactions, some ancient gems and medals, a few antiquities found at Augst, a large number of prints, and some original drawings and paintings by Holbein.

The abbey church of Einsidlin is a large and magnificent building; but rather overloaded with ornaments. In an aisle near the entrance is an elegant marble chapel of the Corinthian order

which forms the shrine of the Virgin Mary. On the outside an angel supports the following inscription:

*Hic est plena remissio peccatorum omnium a culpâ et pœnâ.*

Within is the miraculous image of the Virgin, so much the object of devotion among the Roman Catholics; she is richly apparelled, and her vestments are changed every week. The valuables in the treasury are immense, consisting of the rich offerings of devotees, and many relics sumptuously ornamented.

The church of Madona, or the Virgin Mary, situated about half a mile from Tirano, is a large handsome edifice constructed with marble, and stone stuccoed. The principal entrance is formed by two Corinthian pillars, ornamented with foliage and festoons of flowers, while the pilasters are neatly decorated with basso relievos in the style of the antique.

Near the village of Gruti is a chapel, erected in honour of William Tell, on the spot where he is said to have leaped from the boat which was conveying him as a prisoner to Kussnacht. It is built upon a rock, projecting into the lake, under a hanging wood; a situation amid scenes so awfully striking as must infallibly rouse the most torpid imagination. On the inside of this celebrated edifice are painted the most remarkable actions of the gallant deliverer of his country.

The palace of Inspruck is a noble building, and worthy the attention of a stranger. The walls of the great hall are painted in fresco, and represent the labours of Hercules, many of which are well executed, though the fissures, occasioned by earthquakes, have, in some measure, injured

appearance. In an adjoining room are the
aits of several illustrious personages; and
ng the rest, that of Mary queen of Scots,
lly eminent for her personal charms and un-
y destiny. The gardens are very large, but
ad condition: in the centre is a beautiful
strian statue of the archduke Leopold, and at
all distance are twelve figures of nymphs and
gods, as large as life.

overed galleries lead from this palace to five
ent churches; one of which contains a mo-
ent of the emperor Maximilian, though this
t the place of his sepulture. On the top of
nonument is an effigy of the emperor in brass,
kneeling posture; and below him is a beau-
bass-relief, in twenty-four compartments, re-
nting his principal actions. On each side of
nonument is a row of colossal brass statues of
persons as were any way related to the
ror.

ne castle of Chillon is a large and noble pile,
several round and square towers. It is built
rock in the lake of Geneva, and is connected
the land by means of a draw-bridge: the
s are very fine, and the pillars and arched
are in the true gothic style.

his castle was wrested from Charles III. of
y, by the Swiss in 1536. At this time Boni-
the intrepid assertor of Genevan inde-
ence, was found in a deep dungeon below
evel of the lake, where he had been confined
e Savoyards six years, and by constant walk-
n his narrow limits, had actually worn a hol-
n the rock.

*e bridge* over the Rhine at Schaffhausen
*f singular* architecture, and worthy of par-

ticular attention. Several stone bridges ha
carried away by the rapidity of the torrent, whe
a carpenter of Appenzel offered to throw a woode
bridge of a single arch across the river, which
nearly four hundred feet wide. The magistrate
however, required that it should consist of t
arches, and that the middle pier of the old brid
should be employed for that purpose; but
though the architect was obliged to obey, he c
trived to leave it doubtful whether the bridge
supported by the middle pier, and whethe
would not have been equally safe if formed
his own plan. A man of the lightest weigh
it vibrate under him, though waggons h
laden might pass over it without danger
mechanism, though simple, was most extr
nary, and afforded a striking proof of the a
of the man who projected and executed it
the least knowledge of mathematics, and,
without the least pretensions to literature
curious bridge was finished in less tha
years, at the expence of eight thousand
but it was burnt by the French troops, w
evacuated Schaffhausen after being def
the Austrians, in the spring of 1799.

At Bex, in the canton of Bern, is
bridge over the Rhone, which is nearly
dred feet long, and consists only of on
considerable height, with a handsome
the top. And in the canton of Uri
bridge, over the Russ, of a surpris
consisting solely of one arch, restin
high rocks. The neighbouring pe
given it the name of "the Devil's B
a simple opinion that such a stup
must have been erected by the devil

e wooden bridge of Wettingen, about a
distant from Baden, is a most admirable
of mechanism, two hundred and forty feet
gth, and suspended above twenty feet from
rface of the water. Mr. Coxe observes,
e shot under this bridge with such velocity,
n the moment he was admiring its bold pro-
n on one side, he suddenly found himself on
her. This is said to have been the last work
self-taught artist who constructed the fa-
bridge at Schaffhausen.

## MISCELLANEOUS CURIOSITIES.

Lucerne is to be seen a topographical re-
ntation of the most mountainous parts of
erland, by general Pfiffer a native of this
It is a model twelve feet long, and nine
half broad: the composition is principally a
of charcoal, lime, clay, and pitch, with a
oat of wax; and is so hard, that it may be
upon without receiving any injury. The
is painted with different colours, represent-
e objects as they appear in nature; and it is
ularly worthy of observation, that not only
oods of oak, beech, pine, and other trees
ccurately distinguished, but also that the
of the rocks are marked, each being shaped
the spot, and formed with granite, gravel,
eous stone, or such other substances as com-
he original mountains. The elevations are
from the level of the lake of Lucerne, which,
ing to M. *de* Saussure, is upwards of four-
*undred feet* above the Mediterranean; and

gh the Jews deny every circumstance of the
r except the harsh treatment of their coun-
ien.

t Hindelbank, about four miles from Bern is
celebrated tomb of Madame Langhans, the
t of Nahl, a Saxon sculptor. It is placed on
ody of the church, sunk into the pavement
a grave, and covered with folding doors.
en these are opened a grave stone appears,
recently fissured into three parts, through
h is discovered the figure of a woman slightly
d with a shroud, but in the act of rising, as
the summon of the last trumpet. With her
hand she is gently raising that portion of the
en grave-stone which is over her head, and
e other she holds a naked infant, struggling
its little hands to emancipate itself from the
. The inscription is, "Here am I, Lord,
he child * whom thou gavest me," together
the name and age of the deceased. The
has formed the whole sepulchre out of one
of sand stone, but, as Mr. Coxe observes,
to be regretted, that he had not used more
anent materials; for such a beautiful and
ing design deserves to last till the end of

the arsenal of Zurich is shown the bow of
amous William Tell; and in the library is a
script of excellent letters, written by the un-
ate lady Jane Grey to the judicious reformer
ger, in elegant Latin and German.

* Madame Langhans expired in child-bed on Easter
1751.

## COMMERCE AND MANUFACTURES.

THE commerce of Switzerland was form
very inconsiderable, owing to the mountai
situation of the country, a want of commod
for exportation, and a backwardness in the i
bitants to erect manufactories. Of late years, h
ever, the productions of the loom, dimity, l
stockings, gloves, handkerchiefs, ribands,
printed cottons, are become common in the S
cantons; and the natives are beginning, notv
standing their sumptuary laws, to fabricate s
velvets, and woollen manufactures. Their r
progress in those works, and in agriculture,
probably, soon enable them to augment t
exports, which are at present confined to ho
black cattle, butter, and cheese. With corn
wine, not having yet raised sufficient of their
growth, the Swiss are supplied from the Mila
and the circle of Swabia; with salt from the T
the Franche Comté, and Bavaria; and, in sl
they purchase of their neighbours many of
necessaries as well as conveniences of life.

## CHAP. VII.

### OF THE UNITED PROVINCES.

THE United Provinces, formerly comprehended under the name of* Holland, are so low and flat, that they are in continual danger of being overflowed by the ocean, with which they are bounded on the north and west; but the inhabitants have guarded against the irruptions of that furious element by surprising banks or dykes, the constant repair of which is attended with a vast expence; and annually employs more men than all the corn of the province of Holland could maintain.—They have also made, and support with wonderful care and industry, a great number of canals, which serve to drain off and receive the waters that would otherwise drown their lands; and thus the soil, though naturally wet and marshy, is made to yield most excellent pasturage, with which they feed vast herds of cattle, and are furnished with plenty of butter and cheese.

Nor is this the only advantage the Hollanders derive from their canals, but an easy communication is also opened for the conveyance of goods and passengers from one city and town to another. Their mode of travelling in trechschuyts, or covered boats drawn by horses, is exceedingly cheap and convenient; for the fare is not above a penny a mile, and in these vessels a man may read, write, sleep, or divert himself without interrup-

* Holland is the most considerable of the Seven Provinces *which formerly* constituted one powerful republic.

tion, and without that fatigue and inconvenience which, in a land journey, are almost inevitable. In the winter, when the canals are covered with ice, a farmer's wife, with a basket of butter and eggs upon her head, and her skates upon her feet, will skim away to market, ten or a dozen miles, sell her provisions, and in a few hours be at home again with her family. Neither does the ice prevent the carriage of more weighty burdens, for the canals are often loaded with carts and sledges, the same element thus alternately serving in the capacity of land and water.

Sir William Temple observes, that Holland is generally flat, and looks as if, after a long contention between land and water, it had at last been divided between them; for to consider the great rivers and surprising number of canals that are found in this province, which not only lead to every great town, but almost to every village and farm-house in the country, and the infinity of sails that are seen moving upon them, one would imagine the water to have shared with the land, and the people who live in boats to hold some proportion with those who live in houses. These conveniencies are owing to the nature of the situation, and to that softness of soil, which makes the cutting of canals in Holland so easy a work, as to be attempted by almost every private person.

This short account may give the reader a general idea of the soil of the United Provinces, of which the greatest part is low and marshy, except those of Utrecht and Guelderland, which enjoy a more elevated situation. As to their minerals or fossils, we know of none so remarkable as *to deserve* particular notice; nor do their vege*ble productions* afford any thing that requires a

tion. There are some animals however, though not peculiar to these provinces, l no where more properly under consider-

## ANIMALS.

)RKS are very common in Holland, where uild their nests on the tops of houses, and ı several kinds of useless or pernicious rep- On account of this service great regard l to them by the inhabitants, who never y hurt or molest them; and therefore a stork is an offence punishable by the f the country*. This bird is larger than ron, like which it has a long reddish bill, ı neck is thicker and shorter. The head, breast, and tail are white, but the rump and ; of the wings are black; and its claws are almost like the nails of a man. As it seeks food in watery places, nature has provided long legs; and its bill is strong and jagged,

e stork is likewise much esteemed and rever- ›y the present Mahometans in Egypt, as the ibis the ancient Egyptians: but Dr. Shaw supposes, regard paid to these birds might originally pro- ıot so much from the service they are of to a ad fenny country, in clearing it of a variety of reptiles and insects, as from the solemn gesti- ıs they are observed to make as often as they rest ne ground or return to their nests; for they first heir heads backwards, then make a noise, by the upper and lower part of their bill together, rwards prostrate their necks as it were in a sup- anner, *always* repeating the same motions three *imes.*

to hold fast what it has taken. The female lay but four eggs, and sits thirty days. But what ren ders this bird most remarkable is its steady affec tion to its parents, whom it never forsakes when they are old, but tenderly feeds and defends them as long as they live. "Many stories are related o the wonderful tenderness the old storks bear t their young, of which the following instance may be worthy the attention of our readers.

At Delft, in 1636, a fire broke out in a hous that had a stork's nest upon it, with young one which could not then fly. The old stork return ing with some meat to her young, and seeing the danger they were in, (the fire having almos reached the nest) made several attempts to sav them; but finding all in vain, she at last spread her wings over them, and suffered herself to b consumed in the flames with her offspring.

Indeed the natural affection which all or mos animals have for their young, is an admirabl principle implanted in them by the wise Creator whereof we have instances continually before ou eyes. The returns of tenderness made by th young to the parent animals, when grown old are also very remarkable. Olaus Magnus observe of the crane, that when the parents, through age are stripped of their feathers, the offspring cherish them under their wings, and provide them food Pliny has a remark to the same purpose; and h likewise tells us, that rats nourish their aged pa rents with extraordinary affection.

The following adventure of a tame stork at th university of Tubingen, as related by Mr. Key sler, evinces a degree of understanding, whic one would scarcely expect in any animal. "Th bird," says he, "had lived quietly in the cou

ll count Victor Gravenitz, (at that time a there), shot with ball at a stork's nest near ege, and probably wounded the bird in it, some weeks she was not observed to stir r nest. This happened in autumn, when ign storks set out on their periodical emi-. The following spring a stork was ob- upon the roof of the college, and, by its al chattering, gave the tame stork, which lking in the college-court, to understand, vas desirous of its company; but this being icable, by reason of its wings being clip- e stranger, with the greatest caution, came o the upper gallery, the next day some- wer; and lastly, after abundance of ce- es, alighted in the court. The tame stork, nscious of any crime, went and met him soft cheerful note, as a sincere indication tesy and friendship; but, to his astonish- the other fell furiously upon him. Some ors of this interview immediately put the stork to flight, yet was it so little discou- that the very next day it returned to the , and during the whole summer, frequent hes passed betwixt these birds; for a gen- of the university had given orders that the tork, having but one antagonist to deal hould not be assisted. Being thus put to s, it began to stand better upon its guard, ade such a vigorous resistance, that at the the campaign the stranger had little to f; but in the ensuing spring came four which lighted at once in the college-court acked the tame object of their malice.— eaceable fowl, in presence of many spec- om the galleries, performed extraordinary

exploits, defending itself, and assaulting mies with the most vigorous intrepidit length overpowered, and its strength be pletely spent, it was falling under the s strokes of the enemy, when some very u ed auxiliaries appeared. All the turk ducks, geese, and fowls which were bi in the court, formed a kind of rampart brave associate, by means of which it mi an honourable retreat from so unequal even a peacock, which before would upon good terms with it, on this occasi with oppressed innocence, and was, staunch friend, at least a favourable judg stork's side. This occasioned a stricter be kept against all such treacherous in and a stop was put to any farther effusion till the beginning of the third sprin about twenty storks made a sudden stoo court, and before the poor stork's gua form themselves, or any people could co assistance, they murdered it; yet, even u disparity, it exerted all its former her made them pay dear for their base assassi

The stork is what we call a bird of leaving Holland on the approach of wi returning again in the spring, like sev birds. the time of whose departure w

of that pressure which is the spring of in-
motion in the animal machine; as is de-
able from reason, and from experiments
mals in the exhausted receiver. Upon the
it is most probable, that these birds remove
itely from one country to another at certain
s of the year, taking long flights over sea
nd, in order to enjoy an agreeable tem-
re of air, and a proper supply of food.
seem to be the great motives of this regular
ion: but how such unthinking animals
exactly know the best time for undertaking
ourneys, and also whither to go, and how
r their course, is really amazing. Who
nts their young, that it will soon be neces-
r them to forsake the land of their nativity,
vel into a strange country? Why do those
e detained in a cage express so much un-
s at the season for the usual departure, and
fflicted at their inability to join the com-
Who is it that assembles a council to fix
y of their removal, or sounds a trumpet to
the tribe of the resolution taken, that each
ual may be prepared? Who teaches them
erve such wonderful order and discipline,
t one sets out till the day appointed, nor a
r lags behind? Have they charts to re-
their voyage, or a compass to guide them
ly to the coast they aim at, without being
erted by rains, winds, or the darkness of
hts? Are they acquainted with the places
they may rest and be accommodated with
ments? And what reason informs them,
s or that particular country will yield them
onvenient food and habitation than ano-
*that Egypt*, for instance, will afford them

better accommodations than France, or Spai
any of the intermediate countries over which
direct their flight?—The truth is, that alth
they have neither charts, compass, nor re
they are guided by that powerful instinct
granted by the Creator, whereby "the sto
the heaven knoweth her appointed times,
the turtle, and the crane, and the swallow
observe the time of their coming*."

As the migration of birds constitutes a
curious article of natural history, our reader
kindly will not be displeased if we enlarge a
and give them the sentiments and observatio
the most eminent writers on the subject.—
Magnus is of opinion, that in the winter swa
hide themselves in holes or under water, and
it is a common thing in the northern countri
fishermen to draw them up in clusters, hal
together head to head, feet to feet, &c. He
that such a cluster being accidentally carri
some boys into a stove, the swallows, after
ing, began to fly about, but weakly, and
very little time. To the same purpose Etm
relates, that he had found above a bushel of
lows under the ice in a fish-pond, all dead t
rance, but the hearts still retaining their p

These accounts were confirmed by
, who informed the Royal Society, th
en sixteen swallows drawn from unde
fishermen's nets out of the lake of Sam
bout thirty out of a great fish-pond; th
w two swallows just come out of the w
could scarcely stand, being very wet
with their wings hanging on the gro

* Jeremiah viii. 7.

iat he had often observed these birds to be for some days after their appearance. Notanding these testimonies, however, several ous naturalists are of different sentiments, rticularly Mr. Willoughby, who thinks that ws in winter retire to Egypt and Ethiopia; erhaps the stork retreats to the same coun-

This last conjecture seems the more prowhen we consider, that at the time these eave us, the inundation of the Nile is over, ters are daily subsiding, and the marshes d with aquatic animals, the proper food of ork; and it is well known that stagnating s produce flies of various species, which are le food to the swallow and martin. During nter, therefore, we may suppose them to stay se countries, where every thing at that time ll bloom and beauty, till the scorching heats s them to seek a milder climate, and fly from to Europe.—The reports of birds of passage torpid in caverns and hollow trees, or at the n of deep waters, Mr. Catesby thinks are sted and absurd; but how he can set aside cular testimonies above-mentioned, we can-termine. He agrees in the general opinion, ese birds fly into other countries, with this onal conjecture, that the places they retire in the same latitude in the southern hemi-s, as those from whence they depart, where asons reverting, they enjoy the like tempe- of air: but this appears absolutely impos- the distance being generally too great: nor re any necessity for such a long passage, the countries on this side the line may answer me *purpose*. As to the manner of their *ling, it is probable* that swallows, martins,

fly over, they can then easily make the southern parts of Europe. An Mr. Catesby observes, the same sag structs them to change climates, ma to the narrowest part of our channel danger of passing a wide sea; tl some of these short-winged birds a longer flights than we are apt to Bellonius relates, that he has seen by their structure seem ill adapted neys, passing and repassing the Me great numbers.

As to winter birds of passage, viz red-wing, wood-cock, and snipe, th us to the northern parts of the con they breed and remain during the su the return of winter are driven south of food, of which they are deprived snow in those frigid regions. The snipe, Mr. Catesby has frequently k

as they would find them too cold and destitute of provisions, were they to hasten thither directly when they quit England, they journey gradually through the more moderate countries of Germany and Poland, and do not arrive at those northern regions till the severity of the cold is abated, and proper food may be found for their subsistence.—The coming of these birds to us may then be easily accounted for, being directed from the north to our milder climate for their winter support, by an innate principle of self-preservation; but the cause of their departure in the spring, when one would imagine they should couple and build their nests, is yet a secret in nature; for if it be suggested, that they do not leave us till the haws and other berries are all gone, and they are under a necessity to seek food elsewhere, this will have little weight, unless it can be proved that the northern countries afford them a fresh supply; which we are almost certain they cannot do. As therefore the food of these birds in summer is undoubtedly of a different kind from what they eat in winter, one would think they might find subsistence here in greater plenty, and much sooner, than in the colder countries to which they remove.——In short, says Mr. Catesby, all we know of the matter ends in this observation, that Providence has created a great variety of birds and other animals, with constitutions and inclinations adapted to the different degrees of heat and cold in the several climates of the world, and has given them appetites for the productions of those countries whose temperature is suited to their nature, as well as knowledge and abilities to find them out.

*Towards the mouth* of the river Maese, and in *the Leck, the Wahal*, and other branches of the

Rhine, is annually found an extraordina
insect, called an Ephemeron*, remarkab
shortness of its life, which the name im
is a kind of fly, having four wings, six
two straight hairy tails. Midsummer is
time of its appearance, and it lives on
six hours, being born about six in the eve
dying about eleven at night; but it mu
served, that before it assumes the figure
it lives three years under that of a w
little cell of clay. It begins its change
ding its coat, which being done, and t
thereby rendered light and nimble, it s
few hours of its life in playing about the
the waters; on which the female drops
and the male his sperm, whereby they ar
nated. These eggs descend to the b
their own gravity, and are hatched by th
of the sun into little worms, which ma
selves cases in the clay, and feed on th
the time of their metamorphosis. To
cells the wisdom of the Creator has
them with proper members, their fore
formed somewhat like those of a mole
toothy cheeks (resembling the claws o
serving them to bore the clay. These
of different sizes, from one inch to thre
ing to their age; and are all distingu
fourteen annular divisions or rings, th
which contains the head, the three foll
breast, and the other ten the belly and
their colour, the smallest are blueish,

* Aristotle gives the first account of
ich has also been noticed by Aldrovandu
d Clusius; but more particularly by Sv
a treatise which has been translated by

g to grey; their eyes are brown, but grow
y age; and in time the whole worm be-
f a pale yellow. During its short life the
ron eats nothing, nor is it furnished with
cessary for the reception and concoction
; so that the business of multiplying its
ems to be the sole end of its trans-
on.

destructive reptiles called Pipe-Worms
ietimes bred in vast numbers on the coast
and, and by gnawing their way into the,
rks, of the dikes, where they take up their
s and feed upon the wood, have more than
larmed the republic with terrible appre-
s, lest those fences should be destroyed,
lefend their country from the fury of the

In the year 1731, the persons appointed
ct the state of the dikes caused a pile that
en driven down in the sea in 1718 to be
ıp, which appeared sound on the outside,
ıg split in two, was found gnawed through
worms that were lodged in it, some of
were above a foot long, though they seldom
seven or eight inches. Another pile, al-
ew, being taken up and split, was found
ttle holes about the diameter of the shaft
bacco pipe.

head of this sea-worm is covered with a sort
ıet, consisting of two separate shells, one
right side, the other on the left, with the
of which it penetrates the wood. The fore-
body is of a whitish substance, resembling
er both in taste and colour, but is so ex-
soft and tender, that it can hardly be
l without breaking. The hinder-part is of
texture, and of a greyish colour, termi-

lay their eggs, which being covered with
matter, stick fast to the sides of the piles, v
the young ones, as soon as they are pr
begin to work themselves a habitation. V
worm enters a pile, he bores his way
forward or horizontally, till he meets with
of wood to his liking. He then turns up
perpendicularly, unless he come to the cha
another worm; in which case he alters his
a little, and then proceeds again in an
direction: for it is observed, that in all the
of timber which have been split for the di
of these worms, not a single cell or chan
been found interfering with another, bu
runs perfectly clear and distinct from th
though sometimes at no greater distance t
ness of a card. The worms usuall
as about a foot from the bottom of the
hey advance, a white slimy matte
m, which hardens into a sort o
rms a thin and smooth lining fo

e who have carefully examined into the
e and operations of these insects observe,
y frequently thrust out their little tails at
ings where they first entered; and it is
d that one of the tails serves them to dis-
heir excrements, and the other for respira-
to draw up what water they require. As
wo claws with which they are furnished,
probably useful in climbing up their cells,
nding to the aperture at the bottom when-
y find occasion.

ns of this kind are very pernicious to ships,
ig and eating the planks under water, in
ner we have already described: but when
in harbours where these vermin abound,
al to spread upon their sides and bottom a
tion of tar and beaten glass, whereby they
vented from doing the mischief which
ollow the neglect of such a precaution.
e see (to use a natural reflection of an in-
author) how those formidable floating
which carry whole armies, and pour out
smoke on every side, seeming at once
glory and safeguard of kingdoms, are in
f being destroyed by the bite of an insig-
reptile; and how so mean a creature as a
n the hand of God, is a sufficient instrument
mankind the vanity of all their boasted

hall conclude this article with an account
nermaid, a creature generally supposed
nan and half a fish, and which is am-
, being capable of living on land, though
r is its natural and most agreeable ele-
*Many* persons, indeed, doubt the ex-
f *this* animal; but we have sufficient

testimony to establish it beyond dispute. Several authors relate, that in the year 1430, after a violent tempest which had broke down the dikes in Holland, some milk-maids of Edam, a town upon the Zuyder-Zee, going from thence in a boat to Purmerend, found a mermaid left in the mud with a very little water. They took her into their boat, washed her clean, and brought her to Edam, where they dressed her in women's apparel, and fed her in the same manner as themselves. Some time afterwards she was sent to Haerlem, where she lived a considerable time; but always showed an inclination to return to the water.

Larry informs us, that such a monster was fished up in the year 1187, on the coast of Suffolk, which was kept for some time; but one day it took an opportunity of making its escape, and plunging into the sea, was never heard of more. Another animal of the same species was taken in the Baltic, in 1531, and sent as a present to Sigismund, king of Poland, with whom it lived three days, and was seen by all the court.

Dr. Pontoppidon, bishop of Bergen, in his natural history of Norway, warmly maintains the existence of these animals, and observes that there is not the least improbability of there being in the ocean, a creature that has a greater resemblance to the human species than to any other, on account of the analogy and resemblance that is observed between various species of land and sea animals, and particularly some of the ape kind; but adds it is not at all to be wondered, that the existence of this creature is questioned by many, as most of the accounts we have of it are mixed with [illegible]. Our author, however, to prevent [illegible]

being taken at the name, chooses to call the coast of Norway sea-apes. Among r of instances of the existence of animals, lifferent sizes, that may go under this deion, in distant parts of the ocean, he gives ption of one seen by the Rev. Mr. Peter who told him, that in the year 1719, when bout twenty years old, he saw, on a point near the sea, in Nordland, a merman lyd, and cast ashore by the waves, with sea-calves and other fish. The length of ature was much greater than what has nentioned of any before, being about homs. It was all over of a dark grey coid the lower part, which was like a fish, ail resembling that of a porpus. The face that of a man, with a mouth, forehead, c. The nose was flat, but the nostrils sible; the breast was near the head; and s seemed to hang to the side, to which re joined by a thin skin or membrane; ands resembled the paws of a sea-calf. ndent of these authorities, however, we r testimony to the existence of the mer- sea-ape, which has so long been acfabulous, and can refer our readers to a here all their doubts on the subject may tually removed by ocular demonstration. Thomas Gunston, whip and harness maker, kingham-place, Newington-butts, has at (July, 1803) a small mermaid in his poswhich he received as a present from a gen- and now exhibits to the public at the mocharge of four pence per head; although ts, *that he* might have sold it, some time *the sum of* three hundred guineas.

but it is, notwithstanding, sufficiently pe
convince the sceptical, and to gratify t
mirers of the wonderful works of God.

From the crown of the head to the wai
creature bears a striking resemblance to the
species; but the girdle is furnished with tw
fins, and from thence to the lower extre
exhibits a form similar to that of a fish,
broad and flat tail. The nose, mouth, and
ral appearance of the face, are exactly sir
those of a negro; and the breasts and s
are also formed like those of a human bein
the hands are longer in proportion than t
man; gills are plainly discernible behind th
and the creature has no navel. On the
the head is a curious sort of skin, which mi
ginally have formed a kind of hood, but
up in the form of a toupee.
dimensions of this wonderful anima
From the top of the head to t

ıe fish commences, ten inches and a half. Width cross the breast, from arm to arm, six inches. ireadth of the tail, when extended, thirteen ıches. The colour of the skin, in its present ate, is a kind of yellowish brown; and the flesh perfectly hard to the touch.

This curious production of nature has been about hree years in the possession of Mr. Gunston, to vhom we refer our readers for further particulars.

## MISCELLANEOUS CURIOSITIES.

AT Scheveling, a village on the sea-coast, bout two miles from the Hague, is the model of a and-ship, or sailing-chariot, which was made for rince Maurice of Nassau, by a celebrated ma-hematician. In form it resembles a boat, is ixed upon four wheels of equal bigness, has two ails, is steered by a rudder placed between he two hindmost wheels, and is stopped either y letting down the sails, or turning it from the vind. In this machine the prince and his com-anions used to divert themselves by sailing along he smooth strand; and it was contrived to move vith such ease and swiftness, that a brisk gale vould carry eight or ten persons from Scheveling o * Petten in three or four hours time; the person t the helm directing its course with very little abour. Bishop Wilkins mentions several great ien who have described and admired this curious nvention; but we can scarcely credit all that has een reported concerning the swiftness of its mo-ion.

* *A distance* of about fifty English miles.

In a hill near Maestricht is a remark
quarry, which has one entrance by the
Maese, where carts can pass with ea
load the stones on the bank of the ri
quarry runs parallel with the horizon,
light of torches affords one of the most
prospects imaginable; for the walks ar
and level, and the earth over-head is su
several thousands of square pillars, m
twenty feet high, and all wrought with
ness and regularity as to resemble a sub
palace. There is very little rubbish in t
which is owing to the goodness of the
the carefulness of the workmen; and
places are little pools of water, whi
have been made for beasts to drink,
uses. When armies march that way,
affords a secure retreat for the country p
convey thither their horses, cattle, and
furniture: and indeed it may well serve
purpose, considering its vast extent
Ellis asserts, that it is capable of shelte
dred thousand men; but the chilliness o
during his researches afflicted him wi
ague. The stone dug out of this quarry
ing to the same gentleman, is much like
ing; and the Jesuits have a fine chapel
at Maestricht.

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## BUILDINGS.

THE churches of Amsterdam are,
aking, very handsome structures, an
with fine monuments of admirals and

men, who have distinguished themselves in the service of their country. The old church is a majestic Gothic edifice, with a beautiful and lofty steeple; and the new church, which was burnt in 1645, but afterward rebuilt, is a fabric worthy observation. A tower of extraordinary height was intended for it, and a foundation laid upon more than six thousand piles; but as this did not prove sufficiently strong, the design has not been completed. On the painted windows of this church is represented the liberality of the citizens in presenting the emperor Maximilian with a large sum of money, and his bestowing an imperial crown for a crest to the city. The grate of cast brass before the chancel, being kept very bright, makes a pretty appearance; and the organ, which is supported by columns of beautiful marble, is remarkable for its number of pipes, and its capital imitation of human voices: but the sumptuous monument of the brave admiral de Ruyter is, perhaps, the noblest ornament of this church, and deserves the attention of those who have any taste for excellent sculpture.

The great church at the Hague is a magnificent structure, and has a very high steeple. The choir is separated from the body of the church by a fine brass balustrade, which kind of ornament is to be seen in most of the churches of Holland. Many persons of distinction are interred in this church, and amongst the rest the baron of Opdam, one of the most famous admirals that Holland ever produced. His stately monument was erected at the expence of the republic, a tribute which the Dutch generally pay to the memory of officers who have deserved well of their country. Upon the monument is a long inscription, giving an account of

the baron's great actions, and parti
sea-fight with the English, in 166
was killed, his ship being blown up
ment, some say by accident, and othe
order. In this church is a mon
there is in most churches in the c
towns throughout the United Provin

The new church at Delft is a
building, its steeple one of the high
in the Low Countries, and the ch
harmonious, consisting of several
of different sizes. But this edifice
markable for a magnificent mausol
over the remains of William I. prin
the founder of the republic, who w
at Delft by an emissary of the king o
statue is of brass, completely ar
rounded with several emblematic
inscriptions; the whole designed
in a masterly taste.

The great church at Gouda is
bled structures of the kind in Holl
stately tower, which, together wi
was consumed by lightning in 1
refault with augmented splendor.
windows, which represent in the
lours several pieces of sacred and
are scarcely to be paralleled in E
are the work of two brothers, Theo
ter Crabeth, who were natives o
whose performances are reckoned
thing that has been attempted by
that style of painting.

Most of the churches at Middle
burgh, are sumptuous edifices, wo
traveller's attention. The tower

p of it is particularly remarkable, being very
and the clock, with its dial, is said to have
5,000*l.* sterling.

Utrecht the churches in general are magni-
especially that of St. Martin, formerly the
ral, where Charles V. in 1536, held a
n meeting of the knights of the golden
. It is usually called the Dome, and has a
ower, ascended by four hundred and sixty
from whence there is a fine prospect round
untry, of fifteen or sixteen cities, and a vast
er of considerable villages.

e church of St. Mary, in the same city, com-
called the English church, is much noticed
count of a story concerning one of its pil-
—When the workmen began the building, it
they met with a quagmire where the foun-
of this pillar was intended to be laid, and
of them knew how to surmount the diffi-

At length one Fuso, reckoned an igno-
ellow, undertook to do it, but asked an ex-
nt price; which the bishop not being wil-
give, [illegible] persuaded the man's son to
er the s[illegible] which was to cover the quag
bull's hides. This being done accordingly,
lso disappointed of his expected reward, he
enraged, that he immediately assassinated
ngenerous prelate. There is a Latin in-
ion on the pillar, asserting its being built on
foundation.

Nimeguen, in Guelderland, are several fine
hes; but the most remarkable is that of St.
en, a noble structure, whose roof is sup-
d by thirty-five pillars of excellent work-
ip; and its lofty tower, which was beat
in the war with Spain, has been since re-

built with extraordinary magnificence. choir of this church is the tomb of Cath Bourbon, wife of Adolphus duke of Guel with her statue in brass, and sixteen coats denoting her descent.—The principal ch Zutphen, in the same province, is also a s ous fabric, with a very high steeple, built year 1645, after having been twice destro lightning. It is noted for a fine monu Otho III. count of Nassau, and his lad for a large brass font of curious workmansh

In Dutch Brabant are several stately an tiful churches, particularly the great ch Breda, which has a handsome spire three h and sixty-two feet high, and is adorned wit noble monuments of persons of distinction. of Anglebert II. count of Nassau, who i sented in armour as when alive, is ver admired; the whole being such an exact blance of nature, that it is hardly possible man art to execute any thing more perfe this we may add the cathedral of Bois-le-d in the hands of the Protestants, which i the most sumptuous churches in the Nethe

As to the palaces in the United Provin longing to the ancient nobility, there are merit a description, except that of the p Orange, which stands in a pleasant wood mile from the Hague, and is commonly ca House in the Wood, on account of its si It is a neat and beautiful structure, built b lia, widow of Henry-Frederic, prince of having an extensive grove before it, and den behind. The house is environe over which is a draw-bridge, an through a grate into a long shady

o the front of the building. Here is a
ght of steps adorned with two statues—
res, the other of Pomona, both some-
er than life, and of admirable workman-
the right are likewise placed the statues
n I. and prince Maurice, and on the left
Henry-Frederic and William II. all of
ble. The grand saloon, which is of an
form, takes up the body of the building,
ceeding beautiful and magnificent. But
pal ornaments of this palace are a col-
paintings by the most eminent Flemish
and particularly the celebrated Rubens.
ulcan in his shop, which is placed near
ney, is the work of his pencil, and is
the best piece in the whole collection.
tary exploits of Henry-Frederic, which
ne side of the saloon, and the picture of
ess Amelia in mourning, are likewise
performances; and in one of the draw-
is a flower-piece valued at 1500*l.*
The apartments are furnished in an
nd sumptuous manner; and there is a
rious Japan work, that runs along the
e princess's bed, said to have cost near
sand pounds, being inlaid with mother-
nd precious stones, which twinkle like
n a dark night.—Such at least were the
ns of this palace prior to the revolution,
placed the United Provinces under the
of France.
late stadtholder's marriage with the
royal of Great Britain, his highness
o wings to be added to this charming
ch rendered it much more commodious
*ly than it* was before.

The stadthouse of Amsterdam is not only the mos magnificent in the United Provinces, but is gene rally thought to surpass any thing of the kind i Europe. This superb edifice is all of freestone built upon thirteen thousand six hundred and fifty nine piles *, driven into the ground close to eac other; and the first stone was laid on the 28th October, 1648. It is a square building, two hun dred and eighty-two feet in length, two hundre and thirty-five in depth, ninety feet high in fron and one hundred and sixty to the top of the cupe la. It has above four hundred windows, and adorned with a great number of pilasters of th Corinthian order. On the pediment in the centr of the front is an admirable piece of sculpture i relievo, representing the city of Amsterdam und the figure of a woman sitting in a chair, supporte by two lions, and holding on her knee the arms the city. In her hand she has an olive-branc the emblem of peace; and is attended by sea nymphs, who present her with crowns of pal and laurel. Here are also represented Neptun and his tritons, with several water-animals; th whole in marble, and the workmanship extremel curious. At each side and on the top of this pe diment are placed three brazen statues, repre senting Justice, Fortitude, and Prudence; an

* This mode of building is very common in the Ne therlands, where the ground is soft and marshy; so th not only the stadthouse, but the whole city of Amste dam stands upon such foundations, viz. large piles fir driven perpendicularly into the earth, or rather wa ter, so close to each other that nothing can be force between them. This, however, is a very expensiv method; for the foundation of the stadthouse is said have cost 100,000*l.* sterling.

l it is a handsome dome or cupola, contain-
great number of bells, which compose very
al chimes. In this front of the stadthouse
ven doors, or open arches, alluding to the
provinces of the republic. The back front
building has also a pediment, with an excel-
ass-relief in marble, representing the exten-
mmerce of Amsterdam, under the emblem
oman with a winged cap on her head, to
the four parts of the world (denoted by pro-
ures) offer presents of their respective pro-
ns. On the sides of the pediment are the
of Peace and Plenty, and on the top stands
Atlas with a globe of copper on his shoul-
The inside of this stately fabric is decorated
profusion of fine paintings, sculptures, and
ornaments. The courts of judicature are
with marble, and adorned with curious em-
ical figures or historical pieces, relating to
tribution of justice; particularly a repre-
on of Solomon passing judgment between
vo harlots; and at the entrance of every
or chamber is some sculpture or other ap-
ate decoration.

ight of stairs leads to the great hall, at the
ce of which are two strong folding-doors of
and several marble columns twenty feet
supporting a most beautiful cornice. Over
rnice sits the figure of a woman bearing on
east the city arms, while an eagle places on
ad an imperial crown. At her feet are two
on one side is a statue of Fortitude, and
f Minerva on the other; and four naked
n hover round her with cornucopias, pour-
. fruits and flowers. The beauty and mag-
e of this hall are hardly to be described;
ly marble pillars, the representation of the

four elements at the corners, the exquisite
ings, statues, and other ornaments, at on
prise and charm the spectator: but the g
curiosity is the marble floor, on which the
tial and terrestrial globes are represented in
sphere; the constellations in the one, a
several parts of the earth in the other, w
principal circles, being all delineated in
neatly laid into the marble, and the names
countries expressed in a similar manner.
hemisphere is about twenty-two feet in dia
and the whole is universally admired as
ingenious performance. This structure cos
millions of guilders, or 300,000*l.* sterling,
money was much more valuable than it
present.

## INVENTIONS, MANUFACTURES, &c

Several useful inventions have had th
in the United Provinces, particularly that
telescope, by means of which the wonders
heavens are discovered to us, and astr
brought to a degree of perfection, which
impossible the ancients could ever attain, v
the assistance of such an instrument. The
tion indeed is rather owing to chance than th
for it is said, that the children of a spe
maker at Middleburgh in Zealand, play
their father's shop, happened to hold two
between their fingers, at some distance fro
through which the weather-cock
appeared much larger than ordinar
re very near them, but inverted.
children acquainted their father
surprised at the singularity, behold

of fixing two glasses in brass circles, and ing them so, as to be drawn nearer or removed er at pleasure; and by this means he found, he could see distant objects more distinctly. happened about the year 1590; but authors livided about the name of the spectacle-maker, gh it is generally said to be Zachary Jansen, soon improved his discovery so far, as to ent a telescope twelve inches long to prince rice of Nassau. In 1620, James Metius, her of Adrian Metius, professor of the ma- natics at Franeker, came to Middleburgh, re he bought telescopes of Jansen's sons, who then made them public; and yet Adrian given his brother the honour of the inven- , which has led other writers into the same ake *.

Some of the telescopes, however, made by e artificers were above eighteen inches long, proper for astronomical observations: but the ous Galileo, astronomer to the Grand Duke Tuscany, having heard of a sort of optic glass e in Holland which brought objects nearer, himself to [illegible] it should be; and hav- ground two pieces of glass into form, he fitted to the two ends of an organ-pipe, and by

* Wolfius asserts, that John Bapt. Porta, a noble Neapo- , was the first who made a telescope; grounding his ion on what that nobleman says in a treatise printed 49, concerning concave and convex glasses rightly d together, with which he had assisted many of his ds, who could only see objects in a confused man- But it is certain Porta never troubled himself about oving his invention, or applied it to celestial ob- ations; and the account he gives of his glasses *dark, that Kepler,* who examined it by command e *emperor Rodolphus*, declared it was quite unin- *ble.*

this means made great discoveries in the celestial regions, which he showed to the Venetian nobility on the tower of St. Mark. From this time Galileo applied himself wholly to the improving the telescope; and hence the honour of the invention is frequently ascribed to him, and the instrument has been denominated Galileo's tube.

All the discoveries made by this sagacious astronomer tended to confirm the truth of the Copernican system, which is now generally received as the true system of the world. In the year 1610, he discovered the four satellites of Jupiter, (as Simon Marius, mathematician to the elector of Brandenburg, did about the same time) but his telescope was not good enough to reach those of Saturn, though he found that planet made an odd appearance, which much perplexed the astronomers to account for, and various hypotheses were formed for that purpose. These all seemed trifling to M. Huygens, who thereupon applied himself to improve the grinding of glasses and perfecting long telescopes, in order to obtain a more accurate knowledge of Saturn and his appendage; and accordingly, in 1565, he constructed a telescope of twelve feet, with which he discovered a stupendous ring encompassing the body of that planet. With a larger tube he discerned a satellite revolving round him, and four more were afterwards discovered by Cassini.—It was Galileo who likewise first observed several dark spots passing over the sun's disk, from whence it appears to have a motion round his axis; and the like phænomena are observable on the surface of some of the planets.

*Telescopes* are of two sorts, refracting and reflecting. A refracting telescope consists of an

t, in whose focus * the image of a distant
t is formed, but in an inverted position.
image may be viewed by a single lens or
lass, as is usually done in viewing the hea-
bodies, because it is not material whether
appear erect or inverted; but to view ter-
al objects, whose image we would have
, two other lenses are necessary. If in-
of a convex glass we use a concave one of
ame focal length, it will render the object
, equally magnified, and more distinct and
t: but the disadvantage of this glass is, that
nits of only a small area or field of view,
; therefore not fit to be used when we would
nuch of an object, or take in a great com-
it is very useful however in viewing the
ts and their satellites, Saturn's ring, &c.
this is properly the Galilean telescope.
t the reflecting telescope is the noblest and
useful of all others, which consists chiefly
ecula or mirrors instead of lenses, and is the
tion of the great Sir Isaac Newton. What
ed him to apply his thoughts this way, was
distinctness of vision by refracting teles-
, which he found was owing to the different
gibility of the rays of light: from whence
ncluded, that refraction was too unequal a
ple, and that lenses, of what ever figures,
ow truly soever ground, would never suf-
r the perfection of telescopes. Upon this he
course to a more equable princip'e, viz. that
ection, and made a telescope consisting of

* The focus is that point wherein several rays concur
s collected, after having undergone refraction or
ion.

to magnify the smallest objects, so th
be viewed distinctly. By whom micro
invented is not certainly known, but
owe the discovery to the Hollanders,
gens tells us that Drebel, a Dutchm
first microscope in 1621, and that he
the inventor of it, though the honou
by Fontana, a Neapolitan, who date
same year. These instruments are
tinguished into single and compound,
consisting only of one glass, and the
veral duly combined: and some of th
trived to do their office by refractio
reflection, and others by refraction a
conjointly. A single microscope is
or a spherule; but as little glass sph
made much smaller than any lens,
microscopes, or those which magni
of the spherical kind. Mr. Gray, an
him, have contrived water-microscope
of spherules or lenses of water inste

one object-glass,-and two eye-glasses ; for cts appear dim when viewed through many , part of the rays being reflected in passing h each, the multiplying of lenses is not ble. The double microscope contrived by ntryman Mr. Marshal is of a commodious rious structure; but the pocket-microscope . Martin, furnished with a micrometer to re the smallest part of an object, is one of inest, the most expeditious for use, and the st of any of the compound sort hitherto ed. Here it may be observed, that any pe is converted into a microscope, by re- g the object-glass to a greater distance from e-glass : and since the distance of the image ous, according to the distance of the object he focus, and it is magnified the more as its ce from the object-glass is greater, the same pe may be successively converted into scopes which magnify the object in different es.

ny ingenious foreigners, as well as our ymen, have applied themselves with great nce to improve the microscope, in order to en the secret wonders of nature : and indeed surprising discoveries may we not expect in inute parts of the creation, from an instru- that makes a small grain of sand appear as as a nut, or a hair of the head above an inch meter ? But of all those who have bent their s this way, none have pursued them with unwearied application, or made more curi- id important discoveries than the celebrated eewenhoeck, a Hollander ; and therefore, as re treating of that country, it may not be to be a little more particular with regard to

that gentleman's microscopes, g
he bequeathed to the Royal S
cease.

This legacy consists of a sma
in the drawers of which are thi
or cases, each containing two r
somely fitted up in silver; al
made by M. Leewenhoeck hi
croscope had an object placed l
whole was accompanied with
same in his own hand-writing,
the gentlemen of the society sh
without trouble to examine sever
on which he had made the most
coveries, and which he thought
serving of attention. Amongst
some globules of blood; the eye
pipes, which compose the tooth
part of the crystalline humour f
whale; the animalcula in semin
lamb; a bunch of hair from th
hair-worm; the double silk spu
the eye of a fly; the instrument
spins the thread that composes it
ral other subjects proper for ni
vations.

M. Leewenhoeck having diss
the largest spider he could find,
mined each part, at last discover
ber of instruments from whence
threads of various fineness, whic
at least four hundred, lying not c
in several distinct clusters. At
gentleman took a spider, and
back so that it could not stir, an
with a very fine pair of pince

cking out of one of the working in-
At the same time he saw many fine
ıg out of its body, which, at the dis-
ıair's-breadth or two from the body,
ıer and made thick threads. Hence
that the threads of a spider's web,
ıe naked eye seem to be single, do
t of several threads; some of which,
sing the spider full-grown, are so ex-
ne, that M. Leewenhoeck thought a
them put together would not make a
art of the thickness of a hair of his
ı thousand, therefore, of the fine
ı full grown spider are not so thick as
l if we add to this, that four hundred
:rs, when they first begin to spin, are
th another, bigger than a full-grown
at each of those spiders are provided
: instruments of the old one, it will
the smallest thread of a young spider
red times smaller than that of a great
nat four millions of such threads are
: a hair of a man's head; which is
ıerfectly astonishing, and beyond our

structure of M. Leewenhoeck's instru-
the same in them all, and the appa-
y simple and convenient. They are
ıicroscopes, consisting each of a very
:-convex glass let into a socket between
plates, rivetted together and pierced
ıll hole. The object is placed on a
or needle, which by means of screws
ıed about, and brought nearer or re-
*ber from* the glass, as the eye of the
*o nature* of the object, and the cur-

venient examination of its several parts may require. If the objects were solid, M. Leewenhoeck fixed them to this silver point with glue; but if fluid, or of such a nature as not to be commodiously viewed unless spread upon glass, he first fitted them on a little plate of talc, or very thin blown glass, which he then glued to the needle. For viewing the circulation of the blood, and some other observations, he had a different apparatus.

The glasses of these microscopes are all exceedingly clear, and show the object very bright and distinct; which is undoubtedly owing to M. Leewenhoeck's great care in the choice of his glass, and his exactness in giving it the true figure. Their powers of magnifying are different, as may be requisite for different sorts of objects; but being all ground glasses, none of them are so small, nor consequently magnify to so great a degree, as some of those little drops or spherules frequently used in other microscopes: however, their distinctness much exceeds what is usually met with in glasses of that sort, which was the end M. Leewenhoeck principally aimed at; for though he had glasses by him of an extraordinary smallness for upwards of forty years, he made very little use of them, having found, in a long course of experience, that the greatest discoveries were made with such glasses, as magnifying but moderately, exhibited the object with the most perfect brightness and distinctness.

There is another instrument said to have been contrived by a Dutchman, viz. the thermo-, or weather-glass. As this instrument is ned to show the various degrees of heat and by the elastic or expansive power of

s, so various methods and forms of construct, have been thought of at different times; il, spirit of wine, and quicksilver, having every way applied in this experiment. The common thermometer is that made with of wine, whose structure is as follows. A ball, fixed to the bottom of a narrow tube, d with rectified spirit of wine tinged with a cochineal, and the top of the tube is hermeti- sealed by the flame of a lamp, which se- it from the pressure of the air. Now, spirit ne rarefying and condensing very consider- as the heat of the ambient air increases the is dilated, and consequently ascends in ube; and as the heat decreases, the spirit ndenses, and consequently descends; so the different degrees of heat and cold are n by the ascent and descent of the liquor, shown by a graduated scale on the board to h the tube is placed. The ball must be large portion to the bore of the tube; and that the or cold may sooner penetrate the innermost of the liquor, the ball should not be sphe- but oblong and somewhat like a French flask. e great [illegible] and other thermo- rs is, that they are not reduced to one cer- standard, and therefore cannot be compared her. They mark indeed the different de- of heat and cold; but each marks only for , and after its own manner, as not proceed- om any point of heat or cold that is common em all. Nor can we be assured, that when pirit is risen a degree in two different ther- ters, they have both suffered the impression equal additional heat; since the spirit of *may not be the* same in both; and this spirit

will rise more or less by the same heat, in proportion as it is rectified. On these and several other accounts the comparison of thermometers is very precarious; and though various methods have been proposed by various authors, for finding a fixed point, or degree of heat and cold, from which to reckon the other degrees and adjust the scale, that so observations made at the same or different times, in different places, may be compared together, the matter seems yet undetermined.

Thermometers made with spirit of wine serve to show the comparative heat of the air, but are not sufficient for the purpose of the virtuoso, who wishes to explore the vastly different degrees of heat in other bodies, as boiling oils, melted metals, and even fire itself; for in such degrees of heat the spirit will burst the tube, and it will freeze when the cold is very intense, as some French philosophers experienced in Swedish Lapland. Linseed oil, which requires four times the heat to make it boil that water does, was used by Sir Isaac Newton instead of spirit of wine; but this being insufficient for great degrees of heat, and likewise sullying the tube, it has given way to the mercurial thermometer, which will sustain any degree of heat or cold, as far as an instrument of this kind can be expected to do. This thermometer was contrived by M. Fahrenheit of Amsterdam, and is now come into general use; [illegible]gh it is allowed Sir Isaac's was as well adapted [illegible]y for a standard weather-thermometer, and [illegible]y degree of heat which the various states [illegible]e human body exhibit; and also for those [illegible]rent degrees which vegetation requires in a [illegible]en-house, hot-bed, &c. In all which cases, [illegible]nd many others, it is necessary to have one common, unerring, and universal standard, which a

id in every place, will show the same
:at by the same expansion of the fluid.
account of the inventions of the Hol-
emains to take notice of some of their
s; amongst which we scarcely know
curious and useful than that of paper.
acture indeed is not peculiar to the
ng now got footing in most parts of
t France, Holland, and Genoa, are
where it has best succeeded. The
nufacture has grown into great repu-
we now almost rival the Dutch in
:r, so that we import much less from
formerly; and there are great hopes,
provement lately made in this busi-
we shall eventually make as good
ne as any part of Europe can produce.
d by whom linen paper was invented
, as Polydore Virgil confesses. Sca-
es the invention to the Germans,
he Italians, others to some refugee
asil, who took the hint from the man-
ng cotton-paper in their own coun-
ongingly thinks we received it from
It appears, however, to have been
:ed amongst us towards the beginning
enth century, which agrees with the
of count Maffei, who finds no marks
fore the year 1300. Some indeed go
:r back, and take the Libri lintei,
y Livy and other Roman writers, to
written on linen-paper; but this no-
:n sufficiently refuted. Others make
n more modern than it really is,
*igin about* three hundred and ninety
*but Mabillon* proves the contrary
*anuscripts*, above four hundred years

old, written on linen-paper; and Balbinus produces many testances of such manuscripts written before the year 1340. Add to this, that in the Cottonian library there are writings on paper in the times of most of our kings and queens, as early as the year 1335; and Dr. Prideaux asserts, that he saw a registration of some acts of John Crandon, prior of Ely, made on paper, which bears date in the fourteenth year of king Edward II. that is, A. D. 1320. The invention, according to the learned doctor, seems to have been brought from the East, most of the old manuscripts in Arabic and other oriental languages being written on this sort of paper, some of which are certainly much older than any of the dates abovementioned. This author thinks it most probable, that the Saracens of Spain first brought it out of the East into that country, from whence it was propagated through the rest of Europe. As to the time of its being introduced into England, we read of a paper-mill erected at Dartford as early as the year 1588, which was probably the first, and is celebrated by Thomas Churchyard, a noted poet of that age, in a poem, entitled, "A Description and Discourse of Paper, and the Benefits it brings; with the setting forth of a Paper-mill built near Dartford, by a High German, called M. Spilman, Jeweller to the Queen."

The linen rags, of which our European paper is made, being carried to the mill, are first sorted, then washed very clean in puncheons, whose sides are grated with strong wires, and the bottoms bored full of holes. After this they are fermented, or laid in square heaps close covered with sacking, till they rot, which is commonly done in four or five days. When duly fermented they are twisted into handfuls, cut small, and thrown into oval

s made of well-seasoned oak, about half a eep, with an iron plate at bottom, an inch eight inches broad, and thirty inches long. middle is a washing-block, with fine holes nd a piece of hair-sieve fastened on the in- o that nothing can pass out, except dirty

These mortars are continually supplied ater by little troughs from a cistern filled ckets fastened to the floats of the great , which raises the wooden hammers for ing the rags in the mortars. When the rags aten to a certain degree called the *first stuff*, lp is removed into presses, where it is left low about a week; then it is put into clean s, pounded afresh, and removed into s or boxes as before, in which state it is the second stuff. The mass being beaten d time, till it resembles flour and water it any lumps, it is [illegible] to the pit-mortar, it is perfectly [illegible] and is then taken vat to be formed into paper. The vat is primed when the liquor has such a pro- n of the pulp as that the mould dipped into take up just enough to make a sheet of of the thickness required. The mould is re sieve about an inch deep, having a brass- bottom, resting on sticks to prevent its ıg, and keep it exactly horizontal. This the workman dips into the liquor, and gives ıake as he takes it out to clear the water he pulp. He then slides it along a grove coucher, who turns the sheet, lays it on a nd returns the mould to the maker, who, ı time, has prepared a second sheet in ano- ıould; *and thus* they proceed, laying alter- a *sheet and a felt*, till they have made six

quires of paper, which is called a post. This quantity is then put under a press, and by the strength of four or five men, all the water is pressed from it; after which it is separated from the felts, laid regularly one sheet upon another, and having undergone a second pressing, it is hung up to dry. When sufficiently dried it is taken off the lines, rubbed smooth with the hands, and laid by till sized, which is the next operation. For this they chuse a fine temperate day, and having boiled a proper quantity of clean parchment, or vellum shavings till they come to a size, they prepare a fine cloth, on which they strew a due proportion of white vitriol and rochalum finely powdered, and strain the size through it into a large tub, in which they dip as much paper at once as they can conveniently hold, and with a quick motion give every sheet its [illegible] of the size, which must be as hot as the hand can well bear it. After this it is pressed, hung up in sheets to dry, and then being sorted, it is counted into quires, which are folded, pressed very hard, and tied up in reams or bundles for sale.

The method of making marbled paper is extremely curious and interesting. A trough is provided, either made of lead or pitched wood, of the shape and dimensions of the paper to be marbled, and about four fingers deep, which is to contain the liquor used in the operation. This liquor is made by macerating a quantity of gum tragacanth four or five days in clean water, which is stirred from time to time, and fresh water daily added, till it be of a consistence somewhat thinner than oil, and then it is strained into the trough for use. The colours to be applied on the surface of this liquor, (which are usually blue, red, green,

ow), being prepared of proper ingredi-
re is added to them a little ox or fish-gall;
e colours, when sprinkled on the liquor,
ilate themselves sufficiently, more gall
added; but if they spread too much, the
t be corrected by adding more of the co-
ne colours being ranged in gallipots on the
ere the trough is placed, the workmen be-
pping a brush of hog's hair into any co-
nmonly the blue first, and sprinkling it on
ce of the liquor; then the red is applied
nanner, but with another brush; after-
ne yellow, and lastly the green. When
olours are thus floating on the liquor, they
nted stick, which being drawn from one
he trough to the other, stirs up the liquor
uating colours; after which they draw a
er the surface of the liquor, permitting
teeth to enter; and this being performed
gentle and uniform motion, makes those
id undulations on which the beauty of the
epends. The colours lying in this pos-
operator applies on them a sheet of white
previously moistened, which requires a
that can only be obtained by practice,
ce of the liquor and paper being to meet
n all parts; which done, before the co-
ve time to soak through, he lifts it up nim-
spreads it on a board, where having lain
it is hung upon a line to dry, and is then
with a marble stone or knob of ivory. It
observed, that the sprinkling of the co-
to be renewed, and the other operations
formed with the stick and comb, at every
ion of a *fresh* sheet of paper, because each
*es off all the* colours from the liquor.

The city of Delft is famous for its manufacture of fine earthen ware, which has of late years been imitated, and even equalled both by the French and English. Its beauty consists not only in the whiteness of the glazing, but in the lively colours and pretty designs of the paintings, whether landscapes, birds, flowers, or other ornaments. The white glazing is prepared of lead, tin, flint, and salt, which are first calcined, and then melted together into a cake: after which they are ground very fine, and tempered with water, so as to make them fit to be laid on the work. The blue painting is done with zaffre, which is brought from Saxony, where it is produced from a mineral called cobalt, of which likewise is made the blue smalt, used by painters, and several sorts of arsenic.

The woollen and linen manufactures were introduced into Holland by the persecution raised in the Netherlands against the protestants in the reign of Philip the Second: and the wars between the French and the Dutch obliged the latter to apply themselves to the making of velvets, brocades, ribands, lace, paper, &c. which they used to import from France. But nothing contributed more to bring these manufactures to a good degree of perfection in the United Provinces, than the number of French refugees, who fled from the persecution raised against those of the reformed religion in France, and were kindly received by the Dutch, as well as in England.—The woollen manufacture flourishes most at Leyden, where they make broad and narrow cloths, serges, camblets, druggets, &c.; but inferior to those of Britain, which they purchase to export to other nations.

At Haerlem they make the finest linen, and

beautiful a white, that linens are
m the rest of the provinces, and even
any and other countries, to be bleached
which the waters have a particular
Here also are manufactures of fine silks,
velvets, gold and silver brocades, and
stuffs; which, though inferior in qua-
e of France and Italy, are sold at lower
find a quicker market.

terdam many hands are employed in all
pestry; and a vast number of mills are
that city and its neighbourhood, for
ood, polishing marble, making gun-
grinding snuff, drawing oil from seed,
s other purposes. In short, one may
Amsterdam what Vopiscus said of
a in Egypt, that "all its inhabitants
e business; the lame and the blind have
oyment, and even those who have the
ir hands are not permitted to be idle."
st profit arising from the Dutch herring-
y be guessed at from what we have al-
concerning it in the beginning of this
d with respect to the whale-fishery, the
s have been almost in the sole posses-
for upwards of a hundred years, and it
esent be esteemed one of the principal
of their flourishing trade, as it annually
out two hundred ships, from two hundred
o four hundred tons. Their West India
is much decayed, but their East India
carries on a very advantageous and ex-
mmerce; and their trade to the Levant
nsiderable, though in this branch the
ave the superiority. Their commerce
e, *Spain*, Portugal, Great Britain, and

Ireland, is really surprising, and, i
carry on a prodigious trade in mos
parts of the world, and are so i
numerous, that Holland may pro
pared to a large bee-hive, the mu
continually going in and out rep
lively manner the swarm of bees, w
their ports the richest commodities

## CHAP. VIII.

### DENMARK, NORWAY, AND THE ADJACENT ISLES.

*hirlpools, Springs, Volcanos, Bridges, and Roads.*

ROM the United Provinces we now proceed take a view of what is most remarkable in the rthern parts of Europe, beginning with the gdoms of Denmark and Norway, and the acent islands.

Near the coast of Norway, in about latitude , is a vast whirlpool, commonly called Mael- m, or Moskoestrom, from the island of Mos- , and by mariners the navel of the sea. Its lence exceeds that of a cataract, being heard at reat distance, without any intermission, except a quarter of an hour, at the turn of high and v water, when its impetuosity seems at a nd: but this motion soon returns, and gradu- y increases with such a draught and vortex, as orbs whatever comes within their sphere of ac- n, keeping it for some hours under water, when fragments shivered by the rocks appear again. m this circumstance several authors imagine, t here is an abyss, which penetrates the globe, ing in some very remote parts. But the learn- bishop Pontoppidon observes, that there is no ndation for this conjecture; it having no other se than the collision of the waves, rising and ing at the flux and reflux against a ridge of rocks l shelves, which confine the water, so that it *cipitates like* a cataract; and thus the higher

the flood rises, the deeper must be the fall, the natural result of which is a whirlpool. Mr. Ramus is of the same opinion, and observes, that at the time of flood, the streams run up the country, between the islands of Lofoden and Moscoe, with a boisterous rapidity; but the roar of its impetuous ebb to the sea, is scarcely equalled by the loudest cataracts, the noise being heard at the distance of several leagues. The whirlpool is then of such extent and depth, that if a ship comes within its attraction, it is inevitably absorbed, and dashed to pieces against the rocks at the bottom. But when the stream is most boisterous, and its fury heightened by a storm, it is dangerous to come within six English miles of it; ships, boats, and yachts, having been carried away by not guarding against it, before it was too late. It frequently happens that even whales, coming too near the stream, are overpowered by its violence; and then it is impossible to describe their bellowings in their fruitless struggles to disengage themselves. A bear once attempting to swim to the island of Moscoe, in order to prey on the sheep feeding on the island, afforded a similar spectacle; for the stream caught him, and bore him down, while he roared so terribly as to be heard on shore. It is remarkable that large firs and pine trees, after being absorbed by the current, rise again with their trunks so broken and lacerated, that they seem as if covered with bristles.

The account we have of the whirlpools about the islands of Ferro, which belong to the crown of Denmark, given us by Mr. Jacobson Debes, provost of the churches in those islands, is also very extraordinary. The most dangerous is that which lies south of Suderoe, near a rock called the

here several vessels have been swallow-
The sea round this whirlpool is eighty or
homs deep, and the surface of the water
and serene; but a little farther in, the
es at the depth of twenty-five or thirty
where the sea begins to rise and turn
Within this the ground lies from eight to
elve fathoms deep, in four circles; and
n points or clifts, which are about eight
nder water, and about twelve distant
other. Between these circles are three
from twenty-five to thirty fathoms deep,
the sea runs round; and within every
hole, the depth of which, in the mid-
ve sixty fathoms. The innermost cur-
round but slowly, but the others with
ftness. On the south side of this hole
called the Monk rises ten fathoms above
id north of this are six lesser rocks, on
f which, our author observes, the com-
round like the whirlpool. Considering
r that vessels run by approaching this
e reader may probably wonder how so
a description of it could be taken; but
r informs us, that in very calm weather,
reflux of the sea, the inhabitants ven-
1 there, and to climb the rocks.

, a large island in the northern sea, that
ts name from its excessive coldness,
mense flakes of ice near it, is remarka-
ts hot springs and volcanos. About
ecla are several small basons, which
emit a copious steam. These springs are
rts; some are a little more than tepid,
*erson may* hold his hand in the water,
*y inconvenience*: others are so hot, as

to rise in small bubbles, like water simmering over a fire; but in others the ebullition is so strong, as to force the water up to a considerable height. It is remarkable, that in a district named Reyker-Harbour, are three hot-springs, at the distance of about thirty fathom from each, which bubble up alternately; and this ebullition generally happens in each of them about three times in a quarter of an hour. Though they lie in a plain, they rise from a hard stony bottom, where two of them eject the water from the interstices between the stones, about a yard in height; but in the bottom of the third is a round aperture, through which, in its turn, it throws the water about five or six yards high. After this it subsides about two yards; and, during that interval, persons may go down and take a survey of this wonderful spring. Its ebullition has three gradations: during the first, the water rises half way up the cavity; afterwards it fills to the top, and the third time shoots up to the above-mentioned height. When the water is subsiding, it absorbs any light substance; but at the return of the ebullition, casts out even the heavy stone that have been thrown into it.

A spring in the valley of Hacadel, rises from a hollow rock, at the foot of a mountain; and Mr Olave, who saw it in 1746, says, the cavity is about twenty fathoms in circumference, and three in depth. There is a small aperture at the bottom, through which the water generally rises till it runs over the bason: then follows a terrible noise, like the discharge of small arms, which shakes the very rock. After this noise has been repeated four or five times, the water emits a thick steam like smoke, is violently agitated, and springs up to the height of sixty fathoms, in such quantities

as to form several hot rivulets on every side of the rock. The rising and violent agitation of the water ceases in six or seven minutes, and the cavity or bason becomes empty. This astonishing phænomenon happens once a day, and is periodical, returning at a certain hour; but whether the agitations of this spring correspond with the tides in the neighbouring sea, has not yet been discovered.

All the hot-springs of Iceland, have an incrusting quality; so that the exterior surface from whence they burst forth, is generally covered with a sort of rind, which seems to resemble lime, but was found by Mr. Bergman to be of a flinty nature. In some places the water is impregnated with sulphur; but when drank, as soon as it is cold, it tastes like common boiled water. The Icelanders use it at particular times for dying, and were they to adopt proper regulations, it might be of still greater use. Victuals may also be boiled in it, and milk held over its steam becomes sweet. This water does not become turbid when alkali is thrown into it, nor does it change the colour of syrup of violets: and Horrebow asserts, that if a bottle be filled at one of the spouting springs, the water will boil over twice or thrice, and if corked too soon, the bottle will burst. Some persons are of opinion, that these waters are highly medicinal, and it is said, that the cows which drink of them, yield an extraordinary quantity of milk.

Iceland is particularly noticed for its volcanos, which seem to be more furious than any other yet discovered; and, from the most recent accounts, it appears as if this wretched country were one *continued volcano.*

Mount Hecla, one of the most terrible of these volcanos, is situated in the south-east part of the island, at a small distance from the sea; and has frequently sent forth flames, and a torrent of burning matter, from which circumstances the simple inhabitants have been led to suppose that this was the place where the souls of wicked men are eternally tormented. Its eruptions have been very frequent; and in the year 1693 they occasioned much devastation, the ashes being thrown all round the island, to the distance of a hundred and eighty miles. It takes up four * hours to ascend from the foot of this mountain to its summit; and on the north-west side is a vast chasm, reaching from the top almost to the bottom. It appears from respectable authority, that while flames and ignited matter issued from this chasm, the huge masses of ice and snow on the opposite side were not melted, although the heat was so intense, as to calcine large stones and other substances.

This volcanic mountain was visited in the year 1772, by Dr. Van Troil, Sir Joseph Banks, Dr. Solander, and Dr. James Lind, of Edinburgh, who, on their first landing, found a tract of lava, about seventy miles in extent, entirely ruined, lava, which appeared to have been in the high state of liquefaction. After passing, for some time over an uninterrupted tract of lava, they arrived the first opening, from whence the fire had burst and which is described as a curious place, rounded with lofty glazed walls, and high g cliffs. In another opening, a little higher up

* From an exact observation with Ramsden's meter, Mount Hecla is five thousand feet abo level of the sea.

y discerned the effects of boiling water ; and two hundred yards below the summit, they a chasm, a yard and a half in diameter, e issued so hot a steam, that they could not re the degree of heat with their thermome- The cold now began to be very intense, and ind became so violent, that they were some- obliged to prostrate themselves on the d, in order to elude its extraordinary fury. ie very summit they experienced, at the time, a strong degree of heat and of cold ; the air, Fahrenheit's thermometer stood con- at 24, but when set on the ground it rose . They observed that the mountain was sed of sand, grit, and ashes, which have thrown up with the stones, partly disco- , and partly melted by the fire. Pumice- , common lava, red slate, and a quantity of jasper, burnt at the extremities, were parti- y noticed by the travellers ; and as they de- ed the mountain, they observed three curious gs. — In one every thing looked as red as from another the lava had flowed in a stream fifty yards broad, and after proceeding some , had divided into three branches ; and on ttom of the last they perceived a mount, d like a sugar-loaf, in throwing up of which e had probably exhausted itself.

ppears, however, that out of fifty-one remark- ruptions, only one third have proceeded from t Hecla ; for although this has been com- regarded as the chief volcano on the island, her mountains have been no less active in the of destruction.

*The mountains* of Iceland," says Mr. Pens

nant, "are of two kinds, primitive and posterior. The former consist of strata, usually regular, but sometimes confused, and are formed of various sorts of stone, without the least appearance of fire. Some are composed of sand, free-stone, dirt, several kinds of earth, jaspers, chalcedonies, zeolites of the most elegant kind, crystals, and many other substances that have no relation to volcanos. These primitive mountains are called Jokuls, and are much higher than the other. One of them, called *Æsian*, is six thousand feet high, and seems to be composed of huge irregular rocks, of a dark grey colour, piled on each other. The *Enneberg* is about three thousand feet high; the *Snaefeld Jokul* two thousand two hundred and eighty-seven yards; the *Snaefeldnas* upwards of one thousand eight hundred feet; and the height of *Hornstrand*, or the coast by Cape Nord, is from three hundred to four hundred fathoms.

"The rocks of *Drango* are seven in number, of a pyramidal figure, rising out of the sea, at a small distance from the cliffs, four of which are of a prodigious height, and have a most magnificent appearance. Eastward from the Snaefeld begin the *Eisberge*, soaring to a vast height, many part of which have sustained the action of fire, and in some of the melted rocks are large cavities. *Buddlekker*, a rock at one end of this mountain, is also volcanic, and has in it a great cavern, hung with stalactites; and the name of *Solvahamar* is given to a tremendous range of volcanic rocks, composed entirely of flags, and annually covered with an abundance of sea fowl. But it would be endless to enumerate all the places which bear the marks of fire in various forms, either by having been vitrified, changed into a fiery colour

d and black, or bearing the marks of having
or miles, in a sloping course, towards the

s a fortunate circumstance for the inhabit-
f Iceland, that these terrific volcanos seldom
to throw out fire without giving previous
ing; either by a subterraneous rumbling
, a remarkable cracking in the place where the
s are about to burst forth, or the drying up
nall lakes, streams, and rivulets. The im-
ate prognostic is the bursting of the mass of
ith a dreadful noise; flames then issue forth
the earth; and fire-balls, stones, ashes, &c.
rown out to vast distances. A quantity of
pumice-stone is also thrown up by the boil-
aters; and it is conjectured that these waters
ed from the sea, as a quantity of salt, suffi-
to load several horses, has frequently been
after the volcanic eruptions have sub-

nong the numerous ravages of those volca-
hich, from time immemorial, have contri-
to render the Icelandic regions still less ha-
le than they are from the climate, we shall
notice some of the most recent.

the 17th of May, 1724, the huge mountain
abla began to eject smoke, fire, stones, and
rs, which were immediately followed by a
stream, resembling melted metal. The lava
slowly on, for about nine miles, and dis-
ged itself into the lake of Mynat; and towards
nd of September, 1729, the eruptions of the
tain subsided. They were, however, soon
ved by eruptions of three other adjacent
tains; and in the year 1756, Mount Cotle-
*which had* twice before cast forth fire and

smoke, again began to flame. And it is a common observation among the inhabitants, that when the ice and snow are so accumulated on one of the mountains that formerly ejected fire, as to stop the old clefts and chasms, a new eruption is not far distant.

The most tremendous eruption, however, which was ever known in this island happened in the summer of 1783. Its first signs were observed on the 1st of June, by a gentle tremor of the earth in the province of Shapterfiall. It increased gradually to the 11th, and became at length so alarming, that the inhabitants quitted their houses, and lay, at night, in tents on the ground. A continual smoke was perceived to issue from the earth in the uninhabited parts of the country, and three fire spouts broke out at different places;—one in Ulfardal, and the other two a little westward of the Ilwersisfliot. These fire-spouts, or streams of lava, after rising to a considerable height, united into one body, and at length arrived at such an amazing altitude, as to be seen at the distance of two hundred miles.

This fire was first visible on the 8th of June, when prodigious quantities of sand, ashes, and other volcanic matters were ejected; the atmosphere was literally darkened with sand and brimstone; and considerable damage was done by the continual falling of red-hot pumice-stones, balls of burning pitch, &c. This shower having continued three days, the fire became very visible, and arrived at the prodigious height above-mentioned, sometimes appearing in a continued stream, and at others in terrific flashes, accompanied with a noise like that of thunder, which lasted the whole summer.

same day that the fire broke out, there
quantity of rain, which tore up the
large quantities, and carried it down
ower lands: this water was strongly im-
with acid, and other salts, so as to be
rosive, and to occasion a very painful
when it fell on the hands or face. At
distance from the fire the air was in-
ld, and a heavy fall of hail did great da-
ie cattle, and every thing without doors.
raised by the contest of the two adverse
was, also, so great, that the sun appear-
lood; the whole face of nature seemed
ged; and some portion of this memora-
ity extended as far as Great Britain; for
whole summer of 1783, the atmosphere
nd was clouded with a continual haze,
vented the sun from appearing with his
ıdor.

eadful scene lasted in Iceland for several
ing which the whole country was laid
d the inhabitants fled, in all directions,
asylum from the fury of this unparalleled

first eruption of the fire, the Skapta was
ly augmented; and a similar overflow of
observed in the great river Piorsa; but on
of June, the waters of the Skapta were
minished; and in less than twenty-four
lly dried up. Next day a prodi-
m of red-hot lava ran down the channel
r, and rose to such a prodigious height,
hole adjacent country was overflowed.
still continuing to supply fresh quanti-
amed matter, the lava now took a re-
*irection*, overflowing all the grounds

above, as it had done those below the place whence it issued.

Being at length stopped by the hill whence the Skapta rises, and finding no proper outlet, the liquified lava overflowed the village of Buland, consuming the houses, church, and every thing that stood in its way; though the elevated situation of this village seemed to ensure it from danger. The fiery lake now extended in length and breadth for about thirty-six English miles, and, after rolling for about six miles between the narrow banks of the Skapta, it rushed into a more open place with astonishing force and velocity; tearing up the earth, and carrying on its surface flaming timber, and whatever it met with.

Continuing its impetuous course, it overflowed a number of villages, running in every direction where it could find a vent. At one place it precipitated itself over a cataract of the Skapta with a most tremendous noise; and at another, it stopped up the channel of a large river, filled a spacious valley, and destroyed two villages, by approaching only within a hundred fathoms of them. After spreading over a tract of land forty-eight miles long, and thirty-six broad, it dried up the rivers Tuna and Abasyrd; but even this vast effusion proved insufficient to exhaust the fiery liquid; and a new branch immediately took its course, for about eight miles, down the channel of the Ilwersisfliot, when, coming again to an open country, it formed a lake of fire, twelve miles long, and six broad. On the 16th of August, however, this branch also stopped; the fiery fountains ceased to pour forth new supplies; and the eruption *totally* subsided.

The whole extent of ground covered by this

ling inundation, is said to have been long, and forty-two broad; and the lava was from sixteen to twenty fa- twelve rivers, also, were dried up, ges were utterly destroyed, and two twenty-four persons lost their lives. ver, was only the extent on the south- st sides of the island; for that toward eing chiefly uninhabited land, could ained.

eruption two new islands were om the bottom of the sea. One, about ght, and three miles in circumference, earance about a hundred miles south- land, where there were formerly a oms of water; and the other, which ger, lay to the north-west, between Greenland. These islands continued ome time with great violence, but one em have been since swallowed up.

s, that lava is seldom found near the ience the eruptions have proceeded, se grit and ashes, which, when they cold, take an arched form, and as the frequently becomes solid whilst the ath continues in a state of liquefaction, cavities are sometimes formed, and in- great quantities of stalactite lava. Many es are made use of by the inhabitants g their cattle; the largest in the island and and thirty-four feet long, rather fty broad, and about thirty-five high. e also some prodigious clefts left by the the largest of which, situated in the part of the island, is a hundred and

five feet broad, and very long; its western wall, from which the other has been divided in a perpendicular direction, is a hundred and seven feet six inches in height, and consists of many strata of lava, which seem to have grown cold at different times. The eastern wall is only forty-five feet four inches in height, and that part which is directly opposite to the highest point of the other side, is only thirty-six feet five inches.

But to return to Norway.—It must be observed that the multitude of springs which issue from the mountains, and the vast masses of snow accumulated on their tops, that gently dissolve in summer, form many lakes, in some of which are floating islands, and a considerable number of rivers, none of which are navigable far up the country; the passage being every where interrupted by rocks, and in some places by dreadful cataracts, in which the stream precipitates itself from the height of forty, fifty, and even a hundred fathoms.

The bridges over these rivers are not walled; and are only formed on wooden cases, filled with stones, which serve for piers, on which the timbers are laid. The largest bridge of this kind has forty stone cases, and is a hundred paces in length. But where the narrowness and rapidity of the current will not admit of sinking such cases, thick masts are laid on each side, on the shore, with the thickest end fastened to the rocks: one mast being thus laid in the water, another is placed upon it, reaching a fathom beyond it; and then a third or fourth in like manner, to the middle of the stream, where it is joined by other connected masts from the opposite side. Hence in passing over the bridge, especially in the middle, it seems to swim,

› strangers appears so extremely danger-
t they always alight from their horses, and
n over.

ne parts of Norway the houses of the
stand so high on the steep precipices,
lers are fixed to climb up to them; so
n a clergyman is sent for, he risks his life
ıding them, especially in winter, when
s are slippery. In such places the bodies
ead are lowered with ropes, or brought
ı a man's back, before they are laid in a

of the principal inconveniences experi-
y travellers in Norway arises from the
for they cannot, without terror, pass even
's road, which in some places extends up
es of steep and craggy mountains, on
hat are either shored up, or suspended
bolts fixed in the rocks; and though
ve the breadth of a foot-path, have no
the side.

nountains of Norway, however, are at-
with some advantages; a great chain of
ves as a barrier between this country and
, and also exhibits a most delightful
t; for here nature has added greater beau-
he situation of cottages and farm-houses,
other countries can be enjoyed by royal
though assisted by all the varieties of
terraces, canals, and cascades. The name
ern Italy has been given to the district of
and certainly there cannot be a more en-
; prospect. All the buildings in it are the
the parsonage, and a few farm houses,
*t on different* eminences. The beauty of
e *is much* heightened by two uniform

fruitful fields and farm-houses standing a
other, in a succession of natural terr
tween these a stately forest presents itsel
and beyond that, are the summits of the
covered with perpetual snow, and g
to ten or twelve streams, which form
able contrast in their meanders, along t
ing sides of the hills, till they lose themse
rivers beneath.

We must not quit the country of
without mentioning, that near Rostadt i
naked field, on which no vegetable v
The soil is almost white, with grey st
has somewhat so peculiarly poisonous
ture, that though all other animals may
over it, a goat or kid, no sooner sets its
it, than it drops down, stretches out its l
if it has not immediate assistance, exp

The caverns that are to be met with i
wegian mountains are, perhaps, more

hat they consumed two candles in going and ning.

## FOSSILS AND MINERALS.

ITHIN the bowels of some of the mountains orway, are various kinds of beautiful marble, veined with blue, others diversified with a ty of colours, and others white: there are also n marble with greyish veins, blue marble with e veins, and black marble spotted with white. y likewise yield the asbestos, of which incomble linen and paper have been made; and quantities of the magnet, or loadstone, that al tons of them have been exported.

is remarkable, that though this country nds in stone, no flints have yet been found ; so that those used for fire-arms, are im-d from Denmark or Germany: there are, ver, amethysts, garnets, chalcedonies, agate, , and crystals.

will be proper here to mention Iceland Crysso called, as being found in Iceland in great dance. This is a pellucid fissile stone, chiefly out of the mountains of Iceland *, though vise to be met with in France and Germany. orm is very regular, being always an oblique

* Erasmus Bartholine informs us, that this kind of crysfound in several parts of Iceland, but is chiefly dug a very high mountain near the bay of Roerfiord, in grees of latitude. It is cut by iron tools into pieces cubic foot; and in some of its corners is found a r matter, proper for cutting glass, and resembling ture of a diamond. He adds, that it is electrical, ting straws, feathers, &c. when heated by rubbing; is not so hard as to bear polishing.

parallelopiped composed of six planes; but its sizes vary from a quarter of an inch to three inches in diameter, though its most usual standard is about two inches and a half. It is usually found in single masses, except in Iceland, where it is sometimes found in complex masses of a great breadth: but these are evidently made up of a number of the perfect single specimens, placed side by side in a beautiful and orderly arrangement. This stone has the singular property of splitting with the same ease either horizontally or perpendicularly, which is owing to the regular figure, the smooth surface, and nice joining of the several small concretions of which it is composed. Writers on optics have taken much notice of this stone, and its usual phænomena have been accurately examined by Erasmus Bartholine, Huygens, and Sir Isaac Newton; but neither its nature nor texture seems to have been perfectly understood, most writers having accounted it a crystal, and Sir Isaac a species of talc; whereas in reality it is a true and genuine spar, though in brightness it does not fall much short of the purest crystal, being perfectly clear, and very seldom blemished with flaws or spots, or stained with any other colour. The remarkable property of this body, for which it is so famous amongst opticians, is its double refraction; so that if it be laid over a black line drawn on a piece of paper, the line appears through it double, or two lines appear instead of one, both of the same strength of colour and thickness, and running parallel to each other at a small distance. This effect is best seen through the plain horizontal surfaces of the stone, and there are some angles in which it is not produced. If a ray of light fall on

: either perpendicularly, or obliquely, it
l into two by means of the same double
ı; and the like is observed in rock crys-
gh in a less sensible degree.
ıne kind of stone is found in the isles of
/here they have likewise some talc, and
of salt petre, but in no great quantity.
ea-shore are likewise found a sort of tran-
stones, so hard that one may write with
on glass. Some are white, with a small
of blue, others yellow, and so well po-
ıat they serve to put in rings. They grow
ifts of the rocks, from whence they are
ɔy the waves, but are said to lose their co-
ːn removed.
ay formerly produced gold, but the ex-
f working the mines, and separating the
ɔm the ore, being greater than the profits,
ːe been neglected. There are, however,
nes, which are so valuable, as to afford
nent to several thousand persons. The
re those of Kongsberg, which were disco-
1623. In 1751 forty shafts and twelve
ːre wrought in the four reviers of this mine,
ːh nearly five thousand officers, artificers,
ıurers, are usually employed. The ore in
e is found only in dispersed stratas, and
ːted veins. These mines are in a moun-
.ween Kongsberg and the river Jordal:
ld has been found amongst the silver, and
ıes pure silver has been dug out of it: but
ːr ore is not, as was at first imagined, con-
that mountain, but extends its veins for
iles through the adjacent districts, which
*d by the* new mines, opened from time to
*ıd carried* on very prosperously. One of

the most rich and ancient of all the mines is nam
Old God's Blessing, and has sometimes, within
week, yielded several hundred pounds weight
rich ore.

This mine never fails to fill the beholder wi
amazement at its astonishing depth, which is
less than a hundred and eighty fathoms perpe
dicular; and the circumference at the botto
forms a clear of some hundred fathoms. He
thirty or forty piles, burning on all sides in th
gloomy cavern, and the multitude of miners, c
vered with soot, and bustling about in black le
ther jackets and aprons, seems to form a picture
the infernal regions.

The miners, however, receive such wages
enable them to enjoy themselves in a more agre
able manner than the nature of their pursu
would seem to promise. During the summer th
work nine hours in the day; but in spring a
autumn their labour is abridged; and in win
they do not work at all.

Copper-mines have been discovered in seve
parts of this country; but the principal, and p
haps the richest in all Europe, is at Roraas, ab
a hundred miles from Drontheim: this work yie
annually about eleven hundred ship pounds of p
copper; and the founderies belonging to it c
sume, every year, about fourteen thousand l
of coal, and five hundred fathoms of wood. T
next in importance is the copper-work at Lykk
about twenty miles from Drontheim. A th
mine is carried on at Indret, at the distan
thirty miles from the same place; and here th
ate the copper from its menstruum
of iron. And other copper-mines of

are worked in different parts of the king-

n is found in still greater abundance, and he first metal wrought in this country. Se- hundred thousand quintals are annually ex- d, in bars, stoves, cannon, and culinary uten- and the national profit arising from this sin- ticle of commerce is estimated at three hun- thousand rix dollars.

ıe lead found among the silver ore is an arti- of small importance in Norway; yet some s of this metal have been recently opened, district of Soloer, by the proprietors of the er-work at Oudal.

vitriol work has been begun near Kongs- ; and the mines afford great plenty of sul- ; but the Norwegians will not take the trou- o melt and depurate it, because immense tities may be procured at a cheaper rate in nd. Alum is found in such plenty between late flakes near Christiana, that works have set up for refining this mineral; and his Da- majesty has established some works in the ısula of Valoe, where salt is extracted in quantities from the sea water.

## ANIMALS.

In treating of the animals of Norway, it may ıe improper to mention the horses, as they to merit our attention, on account of some ılarities which render them peculiarly fitted rovidence for so mountainous a country. are small, and of greater use in riding than

in drawing; they have an easy pace, are full of spirit, and remarkably sure footed; for when they mount or descend a steep rock on stones like steps, they first tread gently with one foot, to try if the stone they touch be fast; and in this they must be left to themselves, or the best rider will endanger his neck; but when they are to descend a very steep and slippery place, they draw their hind legs under them, and slide down; in which they perfectly agree with the horses of Peru, so that one might be apt to imagine them of the same breed. It is said that they evince great courage in fighting with wolves and bears; for when a horse perceives any of these furious animals advancing, and has a mare or gelding with him, this generous spirited animal places them behind him, and then attacks his antagonist, by striking at him with his fore-feet, with such dexterity and courage that he commonly remains conqueror.

Besides bears and wolves, Norway contains the lynx; great numbers of black, red, and white foxes; the marten, which, with the former, is hunted for the sake of its skin; as also the ermine and squirrel, both of which are shot with blunt arrows. The skin of the ermine is of a beautiful white, with a black spot on the tail. These little animals run after mice like cats, and drag away what they catch, especially eggs, of which they are remarkably fond. Here are also beavers, otters, badgers, and hedge-hogs.

The leming is a quadruped peculiar to these countries, and is a species of mouse, with a short tail, and a body variegated with black and tawny; it resembles the common rat in shape, but its tail is about five inches long, its fur very fine, and it is ged with a variety of colours. It is nearly as

s a small squirrel, and so fierce, that if a
e held out to it, it will bite, and hold
ast, that one may swing it about before
quit its hold. It breeds in mountainous
; and, at times, comes down into the low
r in vast troops, which destroy all the ve-
produce; and often dying upon the place,
stench, which occasions pestilential fevers.
creatures in their marches keep a direct
generally from north-east to south-west,
ch troop consists of many thousands, who
in lines some yards long, and parallel to each
They march by night, or in the twilight,
still by day; and if they meet with any
o interrupt their course, they do not turn
their lines, even though it be a fire, a deep
river, a lake, or other obstacle, but with-
itation venture through it, by which means
mbers are sometimes destroyed. If they
t swimming over lakes, and forced out of
ourse, they presently return into it again;
hen they are stopped in the fields, they
emselves upon their hind feet like a dog,
ake a kind of barking or squeaking noise,
up as high as a man's knee, and defend-
ir line as long as they are able. If a house
s to be in their way, there they stop till
ie; for they never enter houses, or meddle
e food of the inhabitants. Through a stack of
owever, they will eat themselves a passage;
hen they march through a meadow, they
it considerably by eating the roots of the
but if they encamp there by day they en-
oil it, making it look as if it were burnt or
with ashes. These creatures are very
but their breeding does not hinder their

march; for some of them have been observed to travel with a young one in their mouths, and another upon their backs. The roots of grass, with rotten wood, and the insects contained in it, are their chief food; and during the winter they lie under the snow, having breathing holes near the surface.

Among the birds peculiar to these northern countries, one of the most remarkable is called the Imber, or great northern diver. It is a sea bird, somewhat bigger than a goose, with a long neck; the upper part black, as well as the bill and feet; but from the breast downwards, it is white; the wings are so short, that the bird can hardly raise itself with them; and the legs stand so far backwards, that they are not so fit to walk with, as to paddle along the water. It is said, that this bird is never seen to come ashore, excepting in the week before Christmas; from whence inquiry has been made, how it finds place and opportunity to hatch its young; and bishop Pontoppidan has been informed, that these birds lay but two eggs; that under their wings, in their body, there are two pretty deep holes, big enough to put a man's fist in; in each of which they hide an egg, and hatch their young ones with less trouble, than other birds can do on shore. It is also said, that the young ones are easily enticed ashore, and killed; but the old birds, which are most valued on account of their fine feathers and down, will elude the fowler, by diving quickly under water, and coming up again in an instant.

The jo-tyv is a bird of passage, which appears in Norway early in the spring, and leaves it in autumn. It is constantly pursuing other birds who have any prey, to take it from them, and it is

come at that, it will be satisfied by catch-
the other birds dung, as soon as they

musvit, or black cap, is one of the small-
birds; the body is black and yellow, but
n the breast, with a black cap on its head.
d is always found about houses in Norway,
uch a lover of animal food, that he watches
pening, to get into the pantry, where he falls
e meat, and eats his way into it like a
even the meat that hangs up to be smok-
hardly be preserved from these birds.
lax-tite is a bird peculiar to Norway, and
ame from this singular circumstance, that,
e salmon comes up the rivers, particularly
spring, it follows that fish, and seems
with its company, hovering on the water
it passes: it is a kind of signal to the
en.
hav-hest is a sea-bird, not larger than a
n; it is short and thick, with small wings,
t like a goose. These birds snort like a
n fetching their breath, and have a motion
water which resembles the trotting of a
vith such heaving and violent pushing, that,
ey appear in large flocks, they make the
even in still weather. It seems that they
pproach the shore nearer than three or four
, though in shallow water they flock round
ng boats for the entrails that are thrown
ard; and should any of them be stunned
stick or stone, the rest will gather round
d, and peck him violently till he revives.
Norwegian parrot is rather larger than a
and is covered with black and white

bird builds his nest in the clefts of the r
also in a slanting hole in the ground, si
feet deep.

In short, there are such incredible nu
sea and land fowl, near the rocks on
shore, that they sometimes obscure the
the heavens for many miles; so that it s
all the fowls in the universe were assembl
place.

As we have already given an accou
adventurous method of catching birds,
by the inhabitants of St. Kilda, we shal
scribe the manner in which this is perf
the Norwegians, which, though it rese
other, in some particulars, yet in other
ferent, as to merit the attention of our
The people, who are called Bird-men,
methods of catching fowls; they either
the perpendicular rocks, or are let dow
top by a strong and thick rope. W

ird-pole, and a long rope which they tie at end round their waists. One man then bs up as high as he can, and is pushed forward is companion's pole, till he finds a secure ling-place. The uppermost of the two then s the other up with the rope; and thus they eed till they get to the part where the birds l. As they have many dangerous places to climb, one always seeks a convenient spot re he can hold himself fast, while the other mbing about. If the latter should happen to he is held up by the other, who stands firm; when he has passed in safety those dangerous es, he fixes himself in the same manner, that ay enable the other to come safe to him; and they clamber about after birds where they se. But sometimes accidents happen; for if does not stand firm, or is too weak to sup- the other when he slips, they both fall and killed; and every year some perish in this ner.

aving reached the places that are seldom ed, they find the birds so tame, and so illing to leave their young, that they are y taken by hand; but where they are wild, throw a net over them in the rock, and en- le those that are flying, with a net fixed to end of their poles. If the weather continue urable, and there be a great deal of game, birdmen sometimes continue eight days toge- on the rocks; where they find holes or ca- s, in which they can securely take their re- . In this case they draw up provisions with ; and boats are continually attending to re- e *the game they* have caught.

*many of* the rocks are so steep and danger-

ous, that the birdmen cannot possibly climb them, they are then let down from above, by means of a strong rope eighty or a hundred fathoms long, and about three inches in thickness. One end of it the bird-man fastens about his waist, and then drawing it between his legs, so that he can sit on it, he is let down with his bird-pole in his hand, by six men at the top, who lower the rope by degrees, but lays a piece of timber on the edge of the rock, for it to slide on, to prevent its being torn to pieces by the sharp edge of the stones. Another line is fastened round the man's waist, which he pulls to give signs when he would have them draw him up, let him lower, or keep him where he is. As the adventurer is in great danger of the stones loosening by the rope, and falling upon him, he wears a thick furred cap well lined, which secures him from the blows he may occasionally receive; but if large stones fall, he is in the greatest hazard of losing his life. Thus do these poor men often expose themselves to the most imminent dangers, merely to get a subsistence for their families. There are some indeed who say that there is no great hazard after they are accustomed to it; but at first the rope turns round with them, till their heads are giddy, and they can do nothing to save themselves. Those who have learned the art are so devoid of fear that they will put their feet against the rock, throw themselves several fathoms out, and push themselves into what place they please. They even keep themselves out on the line in the air, and catch with their poles numbers of birds *flying* into their nests. The greatest art consists *in throwing* themselves out so as to swing under *the projection* of a rock, where they fix their feet,

emselves from the rope, and fasten it to
o prevent its swinging out of their reach.
nan has done this, he climbs about, and
ie birds either with his hands or his pole,
1 he has killed as many as he thinks pro-
ies them together, fastens them to a
e, and gives a signal for those above to
n up. In this manner he works all day,
1 he wishes to go up, he either gives a
is friends, or works himself up with his
l feet.

: there are not people enough to hold the
: bird-man fixes a post in the ground,
s rope to it, and slides down without any
:, after which he goes to work as before.
)laces there are steep clifts of a prodigi-
ying under the land, and yet above two
yards above the water, which are ex-
difficult of access. Down these clifts
one another in the above manner, and
strong rope with them, fasten it in the
e they can, and leave it all the summer:
they will run up and down, and take the
)leasure.

ipossible to describe how dreadful and
s this bird-catching appears to a specta-
the vast height and excessive steepness
cks, many of which over-hang the sea.
impossible for men to enter the holes
ese projections, or to walk a hundred
nigh on crags of rocks, where they can
fix their toes.

he birds are brought home, part of them
resh, and the remainder hung up to dry
*inter season*. They afford the Norwe-
)od maintenance, partly from their fea-

thers, which are sent to foreign markets, and partly from their eggs; some of which are as good as hens eggs, though they are of various colours and sizes.

Norway is abundantly supplied with fish; one of the most extraordinary of which is the ink-fish, called by some the sea-gnat, and is from nine inches to upwards of two feet in length. The head has two large eyes, and the mouth has some resemblance to a bird's beak; over which are two long octangular horns, covered with small round balls. At the back of the head are two of these horns, twice as long as the rest, and broader towards the end. The body, which is almost round, resembles a small bag, and on each side of it are two skinny membranes, with which the animal occasionally covers itself: but what is most extraordinary, the fore-part of the body is filled with a fluid, which makes the fish appear of a blue colour, though the fluid itself is of a fine black, and may serve for writing ink. When these creatures are in danger, they discharge this liquid, which blackening the water all round them, they become invisible to their pursuers, and make their escape. Thus this otherwise helpless animal is provided by the wise Creator, with a singular method of defending itself against its enemies.

In the Norwegian seas is frequently caught a large fish called a Narval or Sea-unicorn, remarkable for its long tooth or horn, which very much resembles ivory, but is generally more solid and ponderous. This fish is smooth like an eel, its colour white sprinkled with black spots, and its eyes about the bigness of a sixpence. It has two fleshy fins, and a semicircular hole on the top of its head,

ce it spouts water like a whale, and (as
discharges its excrements. The horn
ows straight forwards from the middle of
jaw, is curiously wreathed, and termi-
a point. With this strong weapon the
es attack the strongest whale, and can
such violence as to pierce the side of a
ie imagine the chief use of this promi-
is to break the ice, but it seems rather
or the defence of the animal, and to
o procure its food; for we are credibly
f a whale caught on the coast of Green-
he belly of which a narval had stuck his
the mouth, and was sucking the blood
irs.—What usually passes amongst us
icorn's horn, and is shown for such in
of curiosities, is probably nothing else
th of the narval *.
ie isles of Ferro, there are great num-
ls or sea-calves, of different sizes, some
g as cows, and others not larger than a
animal is amphibious, living either on
the water; and has four feet, the ex-
f which are like fins. They frequently
e rocks by the sea-side, having always
the watch to alarm the rest in case of

ear 1736, a fish of this kind was taken in a
e Elbe in the dutchy of Bremen, about four
he sea, whose horn was six feet three inches
ne fish itself, from the root of the horn to the
the tail, measured seventeen feet six inches.
of this sort is preserved in the repository of
at Paris, given by Andrew Thevet, and pre-
ve been a present made to him by the king
tapa. At Strasburg, in Germany, there is
*even feet* long; and at Venice there are
*different* from each other.

danger. In September, when they bring forth their young, they retire into caves under the rocks, whither the natives row their boats, and kill multitudes of them with staves, though not without incurring some danger from the old ones, as well as from the waves. The islanders sometimes shoot them, and sometimes take them with dogs, which being trained to the sport will swim to them against the wind, that the seals may not smell them, and catching them fast by the throat, hold them till their masters come up to their assistance.—The flesh of the seal is strong, and but indifferent food, though the natives salt part of it with the ashes of sea-weed, and melt the rest for oil; and of their skins they make shoes and other wearing apparel.

In the same seas are several sorts of whales; particularly one called the grind whale, the largest whereof are about five yards long, and come in great numbers under the land when the weather is dark or foggy. When any fishermen see them, they make signs to all the other boats, and thus getting together, they drive the fish into a creek or inlet, where they kill them with spears made for that purpose. The boats divide themselves into two squadrons, one of which attacks the whales, and the other draws up in the form of a half-moon, to prevent their getting out of the creek; but in the skirmish the boats are sometimes overturned, and the fish make their escape. Part of the fat of these whales is used by the islanders instead of butter, some is melted into oil, and the rest of the fish salted in the same manner as the seals. Sometimes these fish are brought in at night with the tide, and run upon the shore, where the people find them in the morning.

is another sort of whales called Doglins, ;ft yards long, which come annually to a e island of Suderoe, where the inhabitants m into an inlet, and kill them with spears. esh, however, is very inferior to that of l-whale; for if a person eats their fat, it es through the pores of his skin, and im look yellow.

g the many sorts of shell-fish, one of t curious is the sea-urchin, known also by : of the sea-apple, which may be seen on : of Norway every day. They are of va- es, from that of a walnut to the head of a n infant; some are of a conical form, and uite round, except the hinder part, which r flat. The shell is entirely covered all sharp prickles like pins, which are r shed once a year, and replaced by new When just taken out of the sea, they have ful greenish lustre; but their greatest ppears when they are dried, boiled, and kles rubbed off. The shell then consists n regular interchangeable stripes of a cy- form, running from the top to the bottom, wed over with as many little white knobs were originally prickles. When this l shell is broken, there is found in it a of slime and water, with a small fish, of a d colour; and from this little body there all the turnings and windings of the shell r of fine threads, that seem only composed ker slime, and have a communication with rnal prickles; and between these is dis- stripes a yellowish spawn. The fish lies d from the bottom to the top of the shell, ere is an almost imperceptible opening

through which the excrements pass. The mouth is extremely curious, being formed of five bones, partly convex and partly concave, all running to a small point, where they join together like the bill of a bird, and have some resemblance to a flower. The sea-urchin is found in a sandy bottom, where he rolls himself about on his prickles wherever he pleases.

Of the Kraken, which is positively said to inhabit the Norwegian seas, the following account is given by bishop Pontoppidan, whose moral character, reverend function, and diligent investigations are entitled to universal respect. "Our fishermen," says the learned prelate, "unanimously and invariably affirm, that when they are several miles from land, and, by their distance, expect from eighty to a hundred fathoms depth, but only find from twenty to thirty, they judge that a kraken lies at the bottom; and if they find by their lines that the water in the same place still shallows on them, they know the animal is rising to the surface, and row off with the utmost expedition till they come into the usual soundings.

"After the fishermen have rested a few minutes upon their oars, the monster slowly emerges from the ocean, and shows himself sufficiently, though his whole body does not appear. Its back (which seems to be nearly an English mile and a half in circumference) looks, at first, like a number of small islands, surrounded with something that floats like sea-weeds, but at length several bright points of horns appear, which grow thicker as they emerge, and sometimes stand up as high as the masts of small vessels. In a short time it gradually sinks, which is thought as dangerous as its

r it causes such a prodigious swell and
, as draws every thing down with it.
hop regrets the omission of, perhaps, the
ortunity that ever was or may be pre-
surveying this astonishing animal alive,
it entire when dead. The Rev. Mr.
ister at Norland, and vicar of the college
ting Christian knowledge, informed our
at in the year 1680, a kraken came into
s that run between the rocks and cliffs
ahoug, where, in turning about, its long
ght hold of some adjoining trees, and be-
ntangled among the rocks, it could not
itself, but putrified on the spot.
not find that any person was destroyed
onster; but it appears that two fishermen
e upon a part of the water full of the
slimy excrements, were exposed to im-
anger: for though they immediately en-
d to row off, the head of their boat was
l by one of the kraken's horns, that it
extreme difficulty they saved their lives
eck.
crement of this creature is said to be at-
of other fish, which, on account of his
ieldy motion, may be absolutely necessary
bsistence, as the slowness of his motion
be necessary to the safety of ships, which
itably be overwhelmed on encountering
upendous animal, if his velocity were
his bulk: for the Norwegians suppose,
is arms with which he takes his food
ay hold of the largest man of war, they
sily draw it to the bottom of the ocean.
*firm the reality* of this animal's existence,
*cites* "Debes's Description of Faroe;"

for the existence of certain islands which suddenly appear and as suddenly vanish; and he informs us that many sea-faring people give accounts of such, particularly in the northern seas. Dr. Heirne, a learned Swede, quotes from Baron Grippenhielm the following passage: "Among the rocks about Stockholm is sometimes seen a tract of land, which at other times disappears, and is seen again in another place. The peasants, who call it *Gummar's Ore*, assert that it is not always seen, but that it lies out in the open sea. One Sunday, when I was out among the rocks, sounding the coast, I saw something like three points of land in the sea, which surprised me a little, and I thought I had inadvertently passed them over before. Upon this I called to a peasant, to enquire for Gummar's Ore; but when he came we could see nothing of it; upon which the peasant said, all was well, and that this prognosticated a storm, or a great quantity of fish." To which bishop Pontoppidan subjoins, "Who cannot perceive that this Gummar's Ore, with its points and prognostications of fish, was the kraken (mistaken by Buraeus * for an island) who may keep himself about that spot where he rises."

The thickness of the kraken has been estimated at three hundred feet, and his breadth at two thousand six-hundred feet, which immense dimensions, though no conclusive argument against the existence of the animal, are certainly strong against the numerous propagation of it; and indeed, from the great scarcity of the kraken, his confinement to the North Sea, and the small number propagated by the whale, who is viviparous, it appears, from analogy, that this creature cannot be numerous.

* Buraeus has placed the Gummar's Ore in the kraken's back in his map.

pinion seems confirmed by a manuscript, to Swen, king of Norway, as cited by ormius in the two hundred and eightieth is museum. " There remains one kind, *asgufe*, whose magnitude is unknown, as y seen. Those who affirm they have seen describe it as resembling an island rather east, and observe that its carcase was nd; whence some imagine there are but e kind in nature."

the last seventeen years, some Dundee who had been on a voyage to the North e an affidavit before the magistrates that seen a kraken, which they took at first and; and their affidavit was printed in papers.—Bishop Pontoppidan also ap- ave been firmly convinced of this animal's , from the information he collected, though ne time he acknowledges the account to ive, and supposes that a farther informa- erning this wonder of nature may be for posterity.

## ISCELLANEOUS CURIOSITIES.

IN a few miles of Sleswick are still to in several places, the ruins of a famous ch was built by the Danes, to prevent ions of the Saxons. It is supposed to begun by Gothofred, king of Denmark, year 808, and to have been afterwards by other Danish monarchs. This ram- anciently called Danewark; and, like *Wall in England*, is reported to have

been originally designed for a heathen te

The royal museum at Copenhagen such a noble collection of natural and curiosities, that most travellers have worthy of particular attention. Dr. forms us, that this fine collection is pre eight chambers; one of which is ent with medals, antique and modern, each kept by themselves, and very judiciously and in a separate case are contained ans*, and other counterfeit medals, workmanship so nearly resemble the tru and Roman antiques, that even good j scarcely distinguish them from origin series of the modern medals of Europe are absolutely complete, and those of e are kept distinctly.

Amongst the natural curiosities pre these chambers, one of the most rema petrified child, the history whereof has

by Bartholine, Licetus, and other authors.
ild was found at Sens in Champagne, in
r 1582, after having lain there between
and thirty years; and that it is a human
and not artificial, is evident beyond all

Its head, shoulders, and belly, are of a
colour, and very much resemble alabaster;
k and loins are somewhat brown and
but from the hips downwards it is of a
ur, and as hard and perfect stone as can
ctly resembling the hard sort of stones
ed in the bladder. This fœtus, after it
en from the mother, was first carried to
ler, at Paris, where it was sold for about
pounds sterling; of whom it was after-
urchased by Frederick III. king of Den-
or sixty pounds, and added to this col-

e of the chambers are to be seen two ele-
teeth, each weighing a hundred and fifty
which were dug out of a stone-quarry in

Here likewise is an Unicorn's Horn, as
lled, white as ivory, and spirally twisted.
owever, is not the horn of any land-animal,
ongs to the Narval, of which we have
given a description.

is fine collection are several large pieces
r ore, dug out of the mines of Norway
, one of which weighs five hundred and
ounds, and is valued at five thousand
. Another piece, somewhat less, is valu-
nore than three thousand; both being so
at they are reckoned to contain at least
rts silver. They are composed of a whit-
e, *the cracks* or cavities whereof seem to
*with pure* virgin silver, which in some

ramifications of this kind are to be
the silver-ores preserved in this muse

Here are also found several lar
amber, some weighing forty or
which, upon opening the ditches a
hagen, were found sticking to the sid
that were buried there, like the gum
trees in our gardens.—In the same
many large branches of white and
one of black; likewise a pair of
growing out of a piece of wood in a
manner.—Here is a human thigh-bo
three inches long, as measured by

* Whether this bone did really belo
body of gigantic stature, or to some ele
large animal, we shall not pretend to d
Sir Hans Sloane observes, in the Philoso
tions, that several of those bones and te
shown as the bones and teeth of giants, ha
upon accurate inspection, to have belonge
or whales; from whence he infers, th
which for want of a sufficient discretio

two very large scollop-shells each holding
it three gallons, and weighing two hundred
twenty four pounds. These were brought
i the East Indies; and it is said, the fish they
ng to is of such strength, that if a man hap-
; to get his arm or leg between the shells
n they are open, it claps them together so
ibly as to cut the limb entirely off.

. piece of marble is preserved in this collec-
, which the Lutherans reckon a very valuable
osity, the natural veins of the stone running
ich a manner, as to represent the exact figure
i crucifix. Some indeed have suspected the
esentation to have been artificial; but upon
nicest examination it appears to be entirely
work of nature.

mongst the artificial rarities preserved in this
e is a skeleton made of ivory, two feet six
ies high, in imitation of a human one; and
t accurately formed and put together.—Here
likewise the history of our Saviour's passion,
itifully expressed in a piece of carved work;

ankind, some being not thirty inches in height, the
or thinks it not unreasonable to imagine that nature
sometimes act in the contrary extreme. Indeed,
have clear testimonies (says he) given us by authors
oquestionable credit and veracity, that there actually
: been men in the world, and it is likely still are, of
i a bulk and stature, as properly to deserve the name
iants. Edmund Mallone, when his shoes were off,
sured full seven feet seven inches in height; and
ter Parsons, porter to king James I. was much of
same stature. Diemerbroeck tells us, he saw at
cht a man eight feet and a half high; Becanus saw
in near ten feet, and a woman that was full ten feet
sight; and Thevet says he was shown, by a Spanish
ſant, the skull and bones of an American giant,
e height was eleven feet five inches.

small man of war in ivory, with silver guns; a watch made of ivory, with all its wheels and movements; and a common cherry-stone, on the surface of which are engraven two hundred and twenty heads, but their smallness makes them appear imperfect and confused*. Besides these, there are many other curiosities in ivory, ebony, box, amber, and other materials, which are kept for the sake of the elegant workmanship.

In this royal repository we find six golden sepulchral urns, which were discovered in the island of Funen in 1685, by a peasant, as he was ploughing his land, and contained each of them some ashes of a greyish colour. The largest of them weighs two ounces and a half, and the others two ounces and a dram. They are very thin, and each has three rings of gold about its neck, with several circles carved upon the outside of the urn, having one common centre. This discovery confirms the assertion of Olaus Wormius and other writers, that it was an ancient custom among the northern nations to burn their dead, and then bury their collected ashes in golden urns.—Another sepulchral urn of crystal, of a conical figure, environed with a gold ring, is said to have been found near Bergen in Norway.—And there are likewise in this collection several vessels of

* Dr. Oliver tells us he did not see the cherry-stone spoken of, but says, that in Holland an Englishman once showed him a cherry-stone with a head upon it, and all so perfect that twenty-four heads upon it, and all so perfect that a naked eye might distinguish those of kings, cardinals, &c. by their crowns and mitres. This curiosity was bought in Prussia for three hundred pounds, and said to have been the workmanship of a poor prisoner at Dantzick.

nt sizes, some of glass, and others of earth, ich are called lachrymatories, being used by ancient Romans to catch the tears of weeping nds, which were afterwards mixed with the es of the deceased.

We shall conclude our account of this cele- ted museum with a description of the Danish l Oldenburg horns, two curiosities which are ch admired. The Danish horn is of pure gold, ighs a hundred and two ounces and a half, is o feet nine inches long, and holds about two irts of wine measure. This horn was acciden- y discovered in the year 1639, by a country l, in the diocese of Ripen in Jutland; and is doubtedly a piece of great antiquity, by the roglyphical figures carved on the outside. Some these figures were perhaps designed to represent ir deities, and the horn was probably used in rifices, as among the ancient Assyrians, and ier nations, who upon such solemnities made a eat noise with horns and trumpets, and also used drink out of them at solemn entertainments.— ie Oldenburg horn, which is of pure silver gilt, eighs about four pounds, and is curiously ena- elled with green and purple. The Danish anti- uaries tell many fabulous stories of this horn, hich are not worth repeating; and as to what ey say of its being given to Otho, earl of Ol- enburg, in the year 989, it is plain it cannot be f that date, for the figures and characters on the utside are evidently modern. These, however, vith the enamelling and other ornaments, are of xcellent workmanship, and render it a very va- uable curiosity.

of modern architecture; but none of t
extraordinary as to require a descrip
cathedral of Roschild, once the capi
mark and a bishop's see, is an old
structure, chiefly noted for being the
of the royal family. Here are the tom
of the Danish kings, some of which are
nificent; and over the altar is a fine pie
carved-work, representing the history
viour's Passion.—The cathedral of Rip
ble pile, built with free-stone and co
lead, and has a lofty square steeple.
columns which support its roof, and
tombs, are its principal ornaments.—
dral of Aarhus, is also of curious archit
adorned with many fine monuments
noblemen, and other persons of distinc

The palace of the king of Denmark
hagen, which was destroyed by fire i
been rebuilt in a magnificent manne
neighbourhood is also a magnificent ro

m the palace into the garden, where is a menary stocked with lions, tigers, and many other ld beasts.

About five miles from Copenhagen is a royal lace, which was thought to have been finished 1739, though it has ever since been constantly ceiving new improvements and embellishments. e outside has a magnificent appearance, nor is ess elegant within. The great hall, which takes the height of two stories, has a noble foun-n, that throws a column of water above twenty t high, which falls down again into a copper son. The chapel is elegant and well adorned; d at the extremity of the garden, which is very autiful, is a noble summer-house; and on one e of it, an eminence covered with trees, on hich is a house, built in the Norwegian taste.

The royal palace of Friedensburg, is pleasantly uated about nine miles from Cronenburg, and as completed in 1720; when the treaty of peace ing concluded with Sweden, the king gave it is name, Frieden, signifying Peace. The inner urt is a regular octagon, formed by seven wings, e story high, and the main building, which opposite the principal entrance. In the midst the court is a fountain, adorned with a marble atue of Peace, made at Florence. The main ilding is in the form of a parallelogram, and vered with copper. The apartments are nobly nished. The garden, though not very extensive, well laid out, and embellished with statues, ses, and other ornaments. It is encompassed a large wood, in which is a menagery, stocked ith a variety of beautiful tame, and wild fowl. om the palace is a delightful prospect, the eye mmanding almost all the vistas in the neigh-

ring wood; and at the end of them is a...
sive lake, in which is a beautiful yacht.
The palace of Fredericksburg is esteemed
ost beautiful and delightful of any belongin
s Danish majesty, and is frequently called,
ersailles of Denmark. It stands on an isla
ne middle of a lake of fresh water, and co
f three principal parts, each encompassed
water, but joined together by bridges. The
divison resembles a horn-work, the fron
which is quite round, and faced with stone,
several buildings on each side. In the secon
vision, are magnificent buildings belonging t
noblemen of the court, and the king's kitc
From thence a fine stone bridge leads to the g
portico of the chief entrance of the palace, w
is built with free-stone, and adorned with s
ture and gilding. The principal building co
of a corps de Logis, and two wings, four s
high, covered with copper, and adorned
several towers; and both wings are join
the front by a low building of one story.
the first entrance into the inner court, the
nificence of the structures, the beauty of th
ble, the elegance of the sculpture, and th
ness of the gilding, fill the beholder wi
nishment; but what principally attracts a
is a noble imitation of the ancient arch
consisting of two grand arcades, one
other, in front of the building: these
seven arches below, and as many ab
with free-stone, and embellished with st
stand either in niches, or detached from
d in this court is a beautiful fount
ry leading to the hall of audience
a fine collection of Italian pai

all is hung with portraits of the Danish kings, he present royal family, as large as life. The its of some of these monarchs, are likewise ifully painted in different parts of the palace, he great actions of Charles IV. are repre- d in rich tapestry.

the church belonging to this palace, a specta- dazzled by the glittering of the gold, silver, urious marble with which it is embelished. altar is of black marble, the front of the table silver and ebony, and the pulpit of the same rials. From the gallery is a good view of the pictures, with which the pilasters between indows are covered. This gallery leads to cious place behind the altar, where the royal ie is erected; and on the walls, which are with crimson velvet, are the arms of all the its of the Order of the Elephant.

iere is a fine garden behind the palace, and the ibouring park, which is about nine miles is agreeably interspersed with canals, fish- s, and a mixture of grass-plats, and little hills valleys, well stocked with fallow deer from and.

ie castle of Gottorp, belonging to the duke of tein, is at the same time a fortress, and one e noblest palaces in these northern countries. nds to the west of the river Sley, in the mid- of a small lake, and is built in the form of an g square, and fortified with four bastions of . A rampart encompasses the first court, the gate of the castle is of a fine blue as hard as marble. On the north side bridge over the lake two hundred paces gth, and at the end of the bridge a fine walk

wide enough for two coaches; and
with an easy and almost imperceptib
sometimes serves as a place of par
gentry to take the air, as well as for
tory.

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